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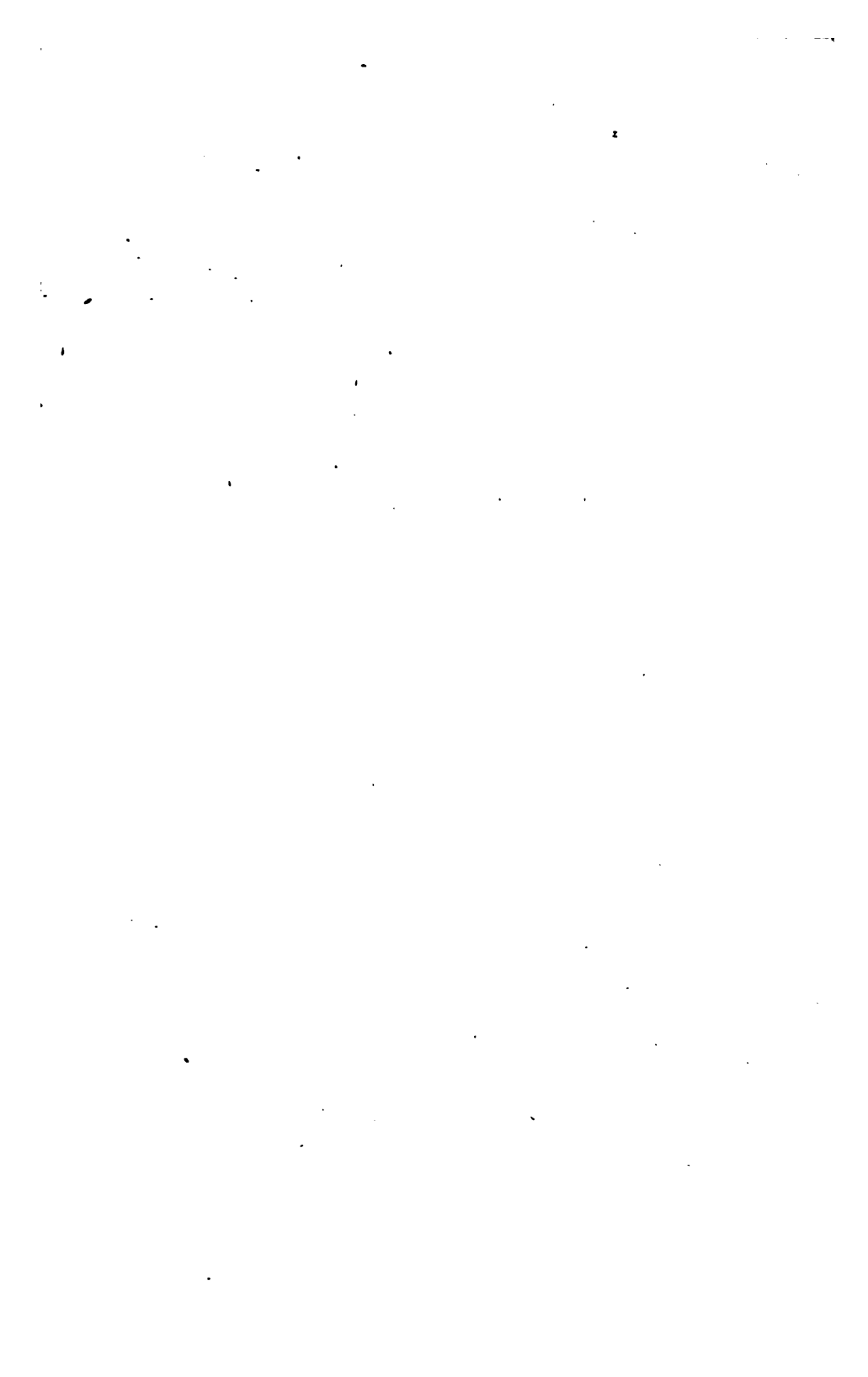


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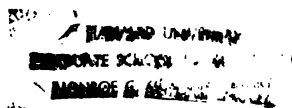


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NATIONAL ASSOCIATION FOR THE PROMOTION OF
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A QUARTERLY JOURNAL OF THE PROGRESS MADE BY
COUNTY COUNCILS AND OTHER LOCAL AUTHORITIES IN
THE ADMINISTRATION OF THE EDUCATION ACTS.

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A QUARTERLY JOURNAL OF THE PROGRESS MADE BY
COUNTY COUNCILS AND OTHER LOCAL AUTHORITIES IN
THE ADMINISTRATION OF THE EDUCATION ACTS.

VOL. XII.] JANUARY, 1903. [No. 49.

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Walter Dwyer

THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (VIEW FROM THE NORTH). (See page 3.)

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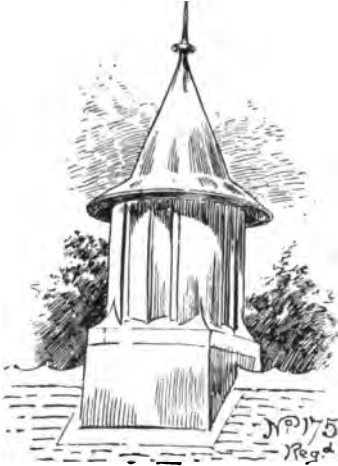
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I.—EDITORIAL NOTES.

We are now enabled to chronicle the adoption by Parliament of an educational measure whose operation is likely to contribute to that development of our national resources which has long been the theme of discussion in these columns. The Education Act, 1902, is printed *in extenso* on pp. 56-77, and the very careful consideration which is being given to its administration by Local Education Authorities throughout the country, coupled with the fact that schemes for the establishment of Education Committees have already been submitted to the Board of Education for approval, constitute the best guarantee that our municipal bodies appreciate the responsible functions with which they have been endowed. It is to be hoped that there will be a prompt adjustment of preliminary procedure in order that attention may be concentrated upon those educational and administrative problems the solution of which promises so much advantage. The Executive Committee of the National Association for the Promotion of Technical and Secondary Education are anxious to render help to educationalists and administrators alike, and they resolved, in December last, "to hold a Conference of Local Authorities and "other Educational Bodies . . . with a view to inducing "and assisting the new Authorities to pay proper attention to the "interests of higher education." This Conference will probably be held in London towards the end of March, when there will doubtless be a representative gathering from all parts of the country. Meanwhile we venture to draw the attention of our readers to the article published on pp. 17-55, in which we have endeavoured to elaborate the principal features of the Act and to offer such guidance as may serve to promote a systematic and complete educational organisation.

* * * * *

In connection with the resolution quoted above, the Executive Committee of the National Association are afforded much encouragement by certain Local Authorities of whose action we give particulars in our Reviews on pp. 147-56. The systematic organisation of secondary education proper recently undertaken by

the County Councils of Buckinghamshire, Lancashire, East and West Sussex and the North Riding of Yorkshire is of good augury for the future development of effort in the whole domain of higher education; for in these areas attention is given not only to the existing secondary schools but also to the establishment of new schools. It is to be hoped that in those localities where comparatively little has been done along these lines a quickening influence will manifest itself and induce such progress as will bring about an equalisation of suitable educational facilities. With respect to the training of pupil-teachers, the establishment of centres of instruction at certain secondary schools in various parts of the country has now been proceeding for some time, and it is pleasing to be able to record in the same Section the successful work conducted in this regard in Hampshire and Nottinghamshire.

* * * * *

In Section IV. of our present issue we have extended our survey of secondary schools by dealing with another county, namely, that of Leicestershire. When the County Council appointed their Technical Education Committee in 1891, the 15 secondary schools were quite without provision for instruction in practical science, and were, with one exception, without any instructor in art. The buildings were, in most cases, old and unsuitable for school purposes. One of the first acts of the Committee, after having appointed an Organising Secretary, was to suggest to the Governing Bodies that they improve their buildings and apply to the Charity Commission for amendment of schemes to allow for representation of the County Council, who were willing to supply fittings and apparatus and to make regular subsidies for the purpose of enlarging the number and raising the quality of the staff. As a result, all the schools have two or three members of the Council on their Governing Bodies, and, with one exception, have been improved or enlarged, four having been re-built on better sites. The Committee have spent about one-half of their Residue Grant upon the schools, have paid to the Governing Bodies sums, varying from £15 to £190 per annum, towards salaries of permanent staff, and have sent their instructors of art, woodwork and metal-work regularly to the schools. Last year an amount of £580 18s. 11d. was earned as Government grants by the schools and was handed over without deduction to the Governing Bodies. The nature and extent of the aid of the County Council to secondary education may, perhaps, be suitably exemplified by the

article on the Girls' Grammar School at Ashby-de-la-Zouch, which is published on pp. 101-10. The county scholarship scheme is complete. Boys and girls who have sufficient ability can pass from public elementary schools to secondary schools and remain there, if found worthy, for six years or longer; if successful in winning a scholarship later, they are liberally assisted during the years they are at a technical college or at a university. Ten Leicestershire scholars are now at Oxford or Cambridge, and the Sixth Wrangler in 1902 was the junior scholar who headed the county competition in 1892.

* * * * *

We give some particulars on pp. 132-3 relating to the important educational conference held in Manchester on January 2nd and 3rd last. This is the first meeting of the conference, and it has proved a great success, both in respect of the numbers attending, the representative character of the gathering, and also in regard to the variety and practical usefulness of the subjects chosen for consideration. The papers were submitted by teachers and others well qualified to deal with their respective subjects, and valuable suggestions were made by those taking part in the discussions. The chairmen of the various sections were unanimous in their approval of the desire of the promoters to afford an opportunity for discussions likely to improve methods and means of instruction and to facilitate and help forward the co-ordination of studies and cordial relations between all classes of teachers. It is probably the first time in the history of education in this country that so large a representative assembly of all classes of teachers and of persons engaged in the administration of education of all grades has been gathered together. Apart from the professional value of the discussions, the opportunity of meeting on the common ground of a desire to promote better ideals of education and a more genuine accord and sympathy amongst all concerned was warmly appreciated. We understand that the present very representative Committee are being continued in office (with additions) to deal with the arrangements for the next annual conference, which is to be held in Leeds.

* * * * *

In their last report upon the distribution of grants for agricultural education, the Board of Agriculture publish another Return of the expenditure of English and Welsh County Councils

upon the various forms of agricultural instruction. The Return deals with the year 1900-1 and shows that, with an increased Residue Grant of £94,000 available in the counties, an additional sum of £10,500 was appropriated for agricultural education. In other words, out of a total Grant of £812,000, an amount of £87,600 was devoted to agricultural education, or between one-ninth and one-tenth of the whole Grant. As regards the sum spent by the Welsh County Councils, about £2,000 were derived from the proceeds of rates levied under the Technical Instruction Acts, and it is worthy of remark that a certain proportion of this amount was raised specifically for the purposes of agricultural education.

* * * * *

A comparison of the details of the present Return with our Abstract of the Board's previous one, published in the last volume of "The Record" (p. 40), will indicate that practically the whole of the increased sum appropriated to agricultural education has gone towards the promotion of instruction or training in connection with central institutions, thus decreasing the scope of certain branches of local work. The following comparative statement of the expenditure during the two years 1899-1900 and 1900-1 *respectively* shows definitely in what particular branches or subjects there have been fluctuations. It should, however, be specially noted that the sums under the various headings necessarily overlap in respect of a number of counties:—

		Year 1899-1900.		Year 1900-1.	
		Total Amount of Grants. £	No. of County Councils making Grants.	Total Amount of Grants. £	No. of County Councils making Grants.
Colleges and Schools.....		25,616	46	34,929	49
Scholarships and Exhibitions..		8,256	46	9,330	43
Local Classes or Lectures for	Horticulture	10,386	44	9,188	39
	Dairying	9,696	42	8,663	37
	Agriculture	5,997	31	6,284	31
	Poultry-keeping	2,563	35	2,530	36
	Farriery and Veterinary Science	2,490	28	2,524	25
	Manual Processes	2,282	19	3,166	22
	Bee-keeping	857	25	1,339	30
General and miscellaneous		9,003	37	9,640	39
Totals.....		<u>£77,146</u>		<u>£87,593</u>	

The Board refer to several movements of some importance that are on foot for the development of agricultural education. The re-organisation of the system for the teaching of dairying in the Eastern Counties is receiving the attention of the County Councils, whose future policy will, we hope, not be at variance with the Board's or their inspector's clearly-expressed opinions, namely, that for all reasons the existing dairy institute at Ipswich should be maintained rather than that a second centre should be created. There is some possibility that the research work in cider manufacture, hitherto carried on partially by a subsidy from the Board, may result in the establishment of a central cider institute for the Western and South-Western Counties, through the joint action of Local Authorities, as well as of that of the Board and the Bath and West of England Society. It is also proposed to form an agricultural collegiate centre upon the lines of the centres at Reading and Leeds, etc., for the South-West of England: the County Councils of Gloucestershire, Herefordshire, Monmouthshire and Worcestershire have already expressed approval of the proposal. Perhaps, however, the most satisfactory feature of progress in the general interests of agricultural education is the fact that the Local Authorities are coming into closer touch with the Board for advisory and consultative purposes. We trust that this tendency will develop so that a suitable degree of uniformity may be secured in the schemes in force throughout the country with due regard for the special conditions of contiguous areas.

* * * * *

The Report of the Departmental Committee on British Forestry is an interesting document and deserves, moreover, the serious attention of the new Local Education Authorities. On the 20th February, 1902, the Board of Agriculture appointed "a Committee "to inquire into and report as to the present position and future "prospects of Forestry, and the planting and management of "Woodlands in Great Britain, and to consider whether any "measures might with advantage be taken, either by the provision "of further educational facilities, or otherwise, for their promotion "and encouragement." We had hoped to publish the Report *in extenso* in our present issue, but pressure upon our space forbids the adoption of that course. Nevertheless, we take this opportunity of emphasising the importance of the issues which have been raised and of expressing the hope that we may be able to deal with the subject fully hereafter. The neglect of sylvicultural principle

this country has been remarkable and has resulted in extensive national losses. When these facts are rightly grasped, we have no doubt that means will be found to cultivate those woodland resources of which our industries sorely stand in need. Among the principal recommendations of the Departmental Committee are (1) that two areas for practical demonstration be acquired, one in England and one in Scotland, of between 2,000 and 10,000 acres in extent in each case; (2) that additional facilities for instruction be afforded by the universities of Oxford and Cambridge and that example plots be provided in connection with each of these centres and with Edinburgh; (3) that a good grounding in forestry form an integral part of the curriculum of the colleges providing instruction in agriculture in Great Britain; (4) that scholarships be offered by County Councils to enable working foresters to attend courses of lectures.

* * * * *

One of the most urgent questions that the new Local Education Authorities will have to face is the provision of training college accommodation for teachers both in elementary and secondary schools. The fact that the training of teachers is specifically mentioned in the Education Act as one of the duties devolving upon the Local Education Authority under Part II. shows what importance was attached to the question in Parliament. In London the question is particularly acute, as the School Board for London require that, as far as possible, all teachers in their schools shall be trained. The London Training Colleges do not afford nearly enough accommodation to supply the annual demands of the School Board, and serious difficulty is found in obtaining sufficient candidates to fill the vacancies that occur. The whole question will no doubt receive the early attention of the new Education Authority for London as soon as it has been established. A beginning has already been made by the Technical Education Board of the London County Council through the establishment of the London Day Training College. In this college provision is made both for elementary and secondary teachers. For elementary teachers a high standard of training is set, as no candidates are admitted who have not passed the Matriculation Examination, or an examination accepted by the University as equivalent to the Matriculation, and every candidate who enters is required to undergo a three years' course for the B.A. or B.Sc. degree of London University, in addition to the usual professional instruction required by the Board of

Education. About 60 students entered the course for elementary teachers in October last, and it is anticipated that about 100 will enter next October. There was also commenced in January a course for secondary teachers. In order to be admitted to this course, students must have already taken their degree at a University or have been through a course of study and passed examinations equivalent to those required for a degree; they are required to devote a year to the course of training and to give their whole time to theoretical and practical instruction under the direction of the Principal. At the end of the year, they will present themselves as candidates for the examination in the Art, Theory and History of Teaching, in connection with the University of London.

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During the last few weeks regulations have been issued for a school-leaving certificate examination by the University of London. Hitherto the London Matriculation Examination has served both as an admission examination to the University of London and as a school-leaving examination, and statistics show that a very large proportion of the candidates who have taken the London Matriculation have not proceeded to take their degrees in the University, but have taken the Matriculation Examination as affording a test of their school work. This arrangement has not been altogether satisfactory, and the University of London have now wisely decided to keep the Matriculation as an admission examination for the University, and to establish special examinations on the result of which school-leaving certificates will be granted. These examinations will be held at the schools, and will consist partly of the papers set for the London Matriculation Examination, or of equivalent papers, and partly of special advanced papers, on the result of which candidates may obtain the mark of distinction. A special feature in the conduct of the examination is that the teachers in the school will co-operate with the examiners appointed by the University, so that on the one hand provision is made for the examination questions to be based on the curriculum pursued in the schools, while on the other hand the presence of external examiners will serve as a guarantee for complete impartiality and for a uniform standard being adopted for various types of schools. Another feature connected with the examination which the University of London are inaugurating is the establishment of a "school record," which is to be kept for each pupil in the school, and which will contain

particulars as to the course of study which the pupil has pursued, the standard which he has obtained in examinations and also particulars as to his proficiency in special subjects not tested by examination. It is understood that the new regulations, which are printed on pp. 118-26, have met with a very favourable reception in the London schools and that some schools are already taking steps to avail themselves of the new system.

* * * * *

The Conference of Teachers which was held at the South-Western Polytechnic, Chelsea, under the auspices of the Technical Education Board of the London County Council on January 9th and 10th was probably the most successful one which has yet been held. It was attended by about 400 teachers and others interested in education, and many of the papers were of special interest. At previous conferences the subjects for discussion have been confined entirely to the methods of teaching various branches of natural science, but at this conference a change was made. Thus, on the first day, the teaching of geometry and workshop mathematics was dealt with, while the second day was devoted to the experimental teaching of botany, to experimental illustrations of the teaching of chemistry and to the preparation of lantern slides. At the opening session, the chair was taken by Mr. Henry Ward, Chairman of the Technical Education Board of the London County Council, while at the second session the chairman was Sir William Anson, Bart., M.P., the Parliamentary Secretary of the Board of Education. The papers and the discussions were throughout of a very practical nature, and there is little doubt that many of the teachers who were present must have benefited considerably by the interchange of ideas and comparison of methods. Particular interest attached to the remarks on the teaching of Euclid in the paper read by Mr. W. D. Eggar, of Eton College, while Miss L. J. Clarke, B.Sc., gave a graphic description of the excellent method of teaching botany which has been introduced into the James Allen's School, Dulwich, under the direction of the London County Council. During the meetings, the laboratories of the Polytechnic were thrown open to the visitors and an exceptionally good exhibition of apparatus used in experimental plant physiology was held in the natural science laboratory. The conference for 1904 was fixed for Friday, January 9th, and Saturday, January 10th, when it is probable that one or two meetings will be devoted to the discussion of improved methods of teaching modern languages.

We greatly fear that the decision of the Treasury in the matter of the Irish "Equivalent" Grant will not be considered satisfactory by the various Local Authorities in Ireland, and will, in fact, tend to restrict their activities on behalf of technical education. We have already explained the circumstances surrounding the distribution of the Grant and stated the case for its continuance, at any rate during these earlier stages of the movement in Ireland. The decision, as explained by the Chief Secretary, is (1) that the existing grants standing at £3,500 shall go on, but (2) that a limit, but not a final one, to their expansion shall be laid down, this limit being fixed provisionally at £7,000 a year. The Treasury have based their decision for the future consideration of the Grant "in co-relation with other such demands, whether educational or industrial, which may be disclosed, and with the resources available to meet them." It would appear, therefore, that only those Local Authorities who, having levied rates, are the earliest to lodge their applications for the payment of the Grant will receive it up to the limit named.

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The second annual report of the Department of Agriculture and Technical Instruction is full of most interesting details regarding the central and local work, of both an industrial and educational character, set in motion by the Act of 1899. There is a complete survey of the organisation of technical instruction under Local Authorities, and this is accompanied by nine county and urban schemes set out in full. Of the county schemes, that for Cork may be taken as typical. It provides for grants towards the buildings, equipment and teaching staff of evening schools and day secondary schools; for technical classes for girls and the training of teachers; and for the maintenance of residential schools of domestic training, of itinerant instructors and of scholarships. It appears that there are now at least 27 schemes in operation in the counties, and in practically all the urban districts there are schemes in force. The Department also state that the demand for technical instruction is in most cases greater than the possibility of supplying it: the dearth of qualified teachers and the inadequacy of funds are the only obstacles to advance. The former is a difficulty which will solve itself in time, but the latter has certainly not been made easier by the provisional decision of the Treasury in the matter of the Equivalent Grant.

Some remarkably rapid progress has been made in the organisation of various forms of technical instruction in the secondary schools of Ireland. At the beginning of the year 1901-2 there were only six science laboratories in existence in these schools. As the result of the issue by the Irish Department of their Programme of Experimental Science, Drawing and Manual Instruction for Secondary Schools, and its adoption by the Intermediate Education Board, as many as 101 permanent and 49 temporary laboratories have been provided, and these afford accommodation for nearly 3,000 pupils working concurrently. The cost of the fittings and apparatus alone, exclusive of that of buildings, is estimated to have been £30,000. As regards rooms for instruction in manual and domestic subjects, only a few schools have so far been provided with them. In view of the recent developments in connection with rural education in England, it is interesting to know that the Irish Department are making a special endeavour to develop courses of instruction suitable to be given in agricultural and technical day schools of the upper primary or secondary grade. The system of itinerant instruction in agriculture is very successful, and would seem to be not unworthy of imitation by many of our English County Authorities. The duty of the itinerant instructor comprises the delivery of lectures, the arrangement of experiments and demonstrations, advice to farmers, visits of inspection to farms, the explanation of the Department's schemes, the distribution of leaflets, the collection of samples of seeds and manures of doubtful quality, and reporting generally upon the local conditions of agriculture and making suggestions for their improvement.

* * * * *

With the current number of "The Record" we have pleasure in presenting to our subscribers a copy of the Index to the last volume.



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (VIEW FROM THE SOUTH). (See page 102.)

II.—THE ADMINISTRATION OF THE EDUCATION ACT, 1902.

AN EXPLANATORY AND SUGGESTIVE REVIEW FOR LOCAL AUTHORITIES.

(1) GENERAL SURVEY.

The Education Bill, which has been so long in preparation and about which such strong feelings have been expressed, is at last an Act, and has passed from the region of debatable politics to that of practical administration. We have no intention in this article to depart so far from the principles which have always guided our editorial procedure as to enter upon any of the controversial theological questions raised during the progress of the Bill through Parliament. But, without doing this, we may point out that the actual provisions of the Act are very different from the expectations of the great mass of both the original supporters and the opponents of the Bill. Those who had had practical acquaintance with the working of the Technical Instruction Acts, and consequently knew how a school could be guided by a Local Authority, irrespective of a majority of votes on the Governing Body, provided that the school is financially dependent on the Authority and the latter have the right of professional and administrative inspection of the work of the school, knew how much was involved in the proposals of the Bill with reference to the management of non-provided schools, and cared comparatively little for the numerical representation among the managers of the schools. This does not imply that the religious instruction will be in any sense controlled by the Local Education Authority. Subject to the terms of the Trust Deed or other instrument of foundation, the managers are to be responsible for the religious instruction, and the voice of the Local Education Authority in this respect will be only that of their representatives; but outside the time specially devoted to religious teaching the control of the Local Education Authority over the education provided is supreme, the teachers are to be the paid servants of the Local Education Authority and any attempt to introduce religious teaching or practices outside the lessons specially devoted to

religious instruction would render a teacher liable to dismissal by the Local Education Authority on secular grounds.

The general effect of the Act is to create a Local Education Authority in every district of England and Wales, except London. Unfortunately in some districts, viz., non-county boroughs with populations exceeding 10,000 and urban districts with populations exceeding 20,000, it creates two Local Education Authorities and thus perpetuates the difference of control of elementary and higher education. We have not universal School Boards, but we are to have universal Local Education Authorities with all the powers of School Boards and a good many added. Under the Elementary Education Acts, non-provided schools which could pay their way by means of Government grants and subscriptions or endowments could exist side by side with board schools and remain perfectly independent of the School Boards or any other Local Authority. Under the new Act, the secular education in a non-provided school *must* be provided by the Local Education Authority as a condition of obtaining any Government grant whatever, and, if the school has an endowment appropriated to the maintenance of secular education, the income from such endowment will go to the relief of the rates in the parish or parishes served by the school. Only if the school is so richly endowed that it can dispense with Government grants altogether can it remain independent of the Local Education Authority, and then it is no longer a public elementary school. The Local Education Authority consequently have the monopoly of the supply of all secular education in the public elementary schools of their district, and it is the duty of the Local Education Authority to provide sufficient school accommodation and efficient elementary education for the children of their district, a duty the discharge of which can be enforced by *mandamus* on the action of the Board of Education.

With regard to education other than that given in a public elementary school, the Local Education Authority may make such provision to supply or aid the supply of education other than elementary as they may think fit, after consulting the Board of Education. To this end the Local Education Authority are endowed with all the powers of a Local Authority under the Technical Instruction Acts, and the Residue Grant under the Local Taxation (Customs and Excise) Act, 1890, is definitely appropriated to higher education; but all the restrictions of the Technical Instruction Acts are removed. The Local Education Authority may make their own arrangements with secondary schools or other educational institutions as to the terms on

which they will grant their aid. No school or institution other than a public elementary school has any claim on the Local Education Authority, and there is no appeal to the Board of Education, as under the Technical Instruction Acts, to see fairplay between rival applicants for the aid of the Local Education Authority. On the other hand, the Authority are not compelled to require accounts to be rendered to them by the school Governors or to appoint representatives on the Governing Bodies of institutions aided. The Local Education Authority are free to make these demands as a condition of their aid if they so elect, and in the majority of cases will probably do so, as these statutory requirements under the Technical Instruction Acts have proved to be valuable safeguards of the public interest. The abolition of the restrictions of the Technical Instruction Acts has left the Local Education Authority under Part II. of the Act free to supply or aid the supply of *any* education other than elementary, and elementary education is confined to education given in a public elementary day school in accordance with the regulations of the Board of Education. The Authority can, therefore, establish and maintain a 'secondary school,' from the infant class upwards, or may aid such a school in all its departments, including Latin, Greek, English Literature and Divinity. They may establish and maintain a university college, or a university itself if any such institution can obtain a Charter for Degrees. All restrictions on the teaching of any specific trade, industry or employment are removed. The powers of the Local Education Authority are limited only by the term 'education,' whatever that may be taken to mean.

Part II. deals with higher education, or education other than elementary, and Part III. with elementary education. In connection with Part II. the Local Education Authority may award scholarships or exhibitions or may pay the fees of students ordinarily resident within their area at schools, colleges or hostels within or outside the area. The Local Education Authority may provide vehicles for or pay the travelling expenses of students or teachers in connection with higher education and elementary education alike, but there is no provision to enable a Local Education Authority to provide scholarships (other than travelling expenses) for children attending public elementary schools, even though they may be exempt from compulsory attendance. In this respect the present Act differs from the Technical Instruction Act, 1891, whereby scholarships could be awarded to pupils in public elementary schools, provided only that they were not studying the compulsory or Standard subjects.

In county boroughs the Local Education Authority are the County Borough Council, who are empowered to raise an unlimited rate both for higher education and for elementary education. In fact, in the county boroughs education is so far unified that, except for the purposes of Government grants and for the conduct of non-provided elementary schools, there seems to be no object in distinguishing between elementary education and 'education other than elementary.'

In rural districts the County Council are the Local Education Authority for all purposes and may raise an unlimited rate for elementary education, but for higher education they are restricted to a rate of twopence in the £, unless they obtain the sanction of the Local Government Board for a higher rate.

In non-county boroughs with a population of less than 10,000 and in urban districts with a population of less than 20,000, the County Council have the same powers as in rural districts, but the Borough Council or the Urban District Council have concurrent powers to raise a penny rate and expend it upon education other than elementary. These boroughs and urban districts have no powers with regard to elementary education, and may by agreement surrender to the County Council their power of raising and spending the penny rate. The minor Local Authority in these cases are not a Local Education Authority.

In non-county boroughs with a population exceeding 10,000, and in urban districts with a population exceeding 20,000, there are, unfortunately, two Local Education Authorities—the County Council for education other than elementary and the minor Local Authorities for elementary education, while the latter Authorities possess the power to raise and expend a penny rate on higher education concurrently with the power of the County Council to raise a twopenny rate over the same area; but these minor Local Authorities are Local Education Authorities only for the purposes of elementary education. In these cases the Council of the borough or urban district may by agreement surrender to the County Council all or any of their powers under the Act.

In all cases the rate which may be raised for the purposes of elementary education is unlimited.

No restrictions whatever are placed upon the Local Education Authorities with regard to the conditions under which they may aid or maintain schools or institutions other than public elementary schools, but for public elementary schools managers must be appointed. Where a County Council are the Local Education Authority for elementary education, the managers of a school provided by the Council are to be four appointed by the Council

and two by the minor Local Authority, and the managers of schools not provided by the Council are, as a rule, to be four foundation managers appointed according to the terms of the Trust Deed or other instrument of foundation, one appointed by the County Council and one by the minor Local Authority. Where the Local Education Authority are the Council of a borough or urban district, they may appoint all the managers of a provided school, and in the case of a non-provided school may appoint two managers to co-operate with four foundation managers. In all cases, both provided schools and non-provided schools may be grouped, a body of managers being appointed for each group as large as may be required, provided that the number of each class of managers is proportionately increased.

While the Local Education Authority are bound to maintain the secular education in any non-provided school in which the average attendance is not less than 30, provided that suitable school buildings are placed at their disposal by the managers, they may call upon the managers to make such alterations and additions to the buildings as may be reasonably required, as well as to carry out all landlords' repairs. It seems not improbable that the reasonable requirements of the Local Education Authority will, in many districts, necessitate a considerable expenditure on the part of the supporters of non-provided schools.

Where the Council of a borough or urban district have power to raise a penny rate for higher education only and possess no powers with respect to elementary education, they are not obliged to appoint an Education Committee, but any Local Education Authority must appoint an Education Committee or Education Committees in accordance with a scheme approved by the Board of Education. When such Committee have been appointed, all matters relating to education, except raising a rate or borrowing money, stand referred to such Committee, and the Local Education Authority may act only in case of emergency without having previously received the report of the Committee. Although the Local Education Authority *must* refer all such questions to the Committee and *must* receive their report on the same, they are by no means compelled to adopt the Committee's recommendations, but are perfectly free to act as they please; they *may*, however, if they so elect, delegate to the Committee any or all of their powers under the Act, except the power of raising a rate or borrowing money.

The first step which must be taken by every Local Education Authority under the Act is the preparation of a scheme setting forth the constitution of their Education Committee or Committees

for submission to the Board of Education. A majority of the Committee must be appointed by the Council and must be members of the Council unless, in the case of a Council of a county, the Council expressly decide otherwise. The scheme must also make provision for the appointment of persons experienced in education and persons having a knowledge of the needs of local schools, for the inclusion of women and for the appointment, if desirable, of members of existing School Boards on the first Committee. Teachers and others holding office in a school or college provided, maintained or aided by the Council are not disqualified from serving on the Committee.

The scheme should provide for the permanent representation of the interests of the different classes of schools, and for a *permanent succession* of persons having experience in education and a knowledge of local requirements. It does not appear to be sufficient for the Local Education Authority to appoint individuals, however well qualified, without making permanent provision for their successors. It is also very desirable that the scheme should be so framed as not expressly to disqualify any class of persons who are not disqualified by the terms of the Act.

As a guide in the preparation of schemes for Committees, the Board of Education have recently issued three Circulars applicable respectively to County Councils, to County Borough Councils and to those Non-County Borough and Urban District Councils who are Local Education Authorities under the Act. As indicative of the character of these Circulars, we print on pp. 23-7 that relating to County Councils. We note that among the main sources of income thus set forth as being available to the Local Education Authority for the purposes of elementary education the endowments of voluntary schools have not been included, and we presume that the exclusion is due to the fact that when the income from these endowments is paid over to the Local Education Authority, a corresponding amount has to be credited to the rates of the parish or parishes served by the schools to which the endowments relate, and, therefore, the income available to the Local Education Authority is not increased. Section VII. of the Circular enumerates the powers which may be delegated or acquired by a County Council by arrangement with minor Local Authorities, and among the powers which may be acquired it seems to us that there should be included the power of raising and expending a penny rate for higher education in the area of a non-county borough with a population under 10,000, or of an urban district under 20,000, although the Councils of such boroughs and districts are not Local Education Authorities.

(2) MEMORANDUM OF THE BOARD OF EDUCATION.**[CIRCULAR 470.]**

THIS MEMORANDUM is intended to set before County Councils such of their powers and duties, and such of the powers and duties of the Board of Education, as it may be desirable for the Councils to bear in mind when framing schemes for the establishment of an Education Committee.

The following notes are limited by this purpose; they are not a summary of the Act, nor do they touch upon several matters in respect of which it may be possible at a later stage for the Board of Education to assist County Councils, if invited to do so, by advice, suggestion and co-operation.

The following Memorandum concerns the Council of a county only.

COUNCIL OF A COUNTY.**I.—Powers and Duties.**

(1) AS TO HIGHER EDUCATION.—To consider the needs of the area, and to take such steps as seem to them desirable, after consulting the Board of Education, to supply or aid the supply of education other than elementary.

To promote the co-ordination of all forms of education.

(As to matters included in education other than elementary, see Sec. 22 (2) (3), Sec. 23 (1) (2)).

(2) AS TO ELEMENTARY EDUCATION.—To take over and exercise the powers and duties of School Boards and School Attendance Committees, and to control all secular instruction in public elementary schools. (Sec. 5.)

To appoint four managers for each school provided by them (Sec. 6 (1)) and also one manager or more for each school not provided by them. (Sec. 6 (2) (a) and (3) (b).)

To maintain and keep efficient all public elementary schools within their area under the conditions set forth in Section 7.

To provide such additional school accommodation as may be necessary, subject to the provisions of Sec. 8 (1), Sec. 16.

II.—Main Sources of Income.

A. FOR HIGHER EDUCATION.—(1) The Residue under 53 and 54 Vict., c. 60, s. 1.

(2) The county rate, which for this purpose must not exceed **twopence** in the pound unless by consent of the Local Government Board.

(3) Parliamentary grant for instruction in science and art subject to conditions laid down by the Board of Education.

(4) Where a borough or urban district which is a Local Education Authority relinquishes to the county its powers under Part II. of the Act, an additional rate for that borough or district not exceeding one penny in the pound.

B. FOR ELEMENTARY EDUCATION. — (1) The Parliamentary grants payable in respect of public elementary schools.

(2) The aid grant under Section 10.

(3) Fees, where the Local Education Authority allows fees to be charged; but in the case of a non-provided school, such proportion only of the fees as is agreed upon under Section 14.

(4) The use of the school-house in the case of non-provided schools during school hours subject to the provisions of Section 7

(1) (4) as to payment for wear and tear, and for the rent of the teacher's house (if any).

(5) The county rate.

III.—Manner of Exercise of Powers.

(a) Every County Council shall establish an Education Committee or Committees in accordance with a scheme to be made by the Council and approved by the Board of Education.

(b) Every matter relating to the exercise of powers under the Act shall stand referred to the Education Committee except the power of raising a rate or borrowing money; and the Council shall, unless the matter is urgent, consider the report of the Committee before acting.

(c) The Council may delegate to the Committee, under any conditions it pleases, any of its powers under the Act except that of raising a rate or borrowing money.

So THE COUNCIL—

must frame a scheme for the establishment of a Committee;

must refer every educational matter to the Committee except the raising a rate or borrowing money;

may, in case of urgency, act without awaiting the report of the Committee;

may delegate, on any terms it pleases, its powers under the Act to the Committee; but

must not delegate its power of raising a rate or borrowing money.

Under all circumstances the Council is responsible, whether for its own action, or for that of the Committee.

IV.—The Scheme of Establishment.

NECESSARY PROVISIONS.—(1) There must be a majority on the Committee of members of the Council, unless the Council of the county otherwise determine.

(2) The Council must appoint :

(a) persons of experience in education.

(b) persons acquainted with the needs of the various kinds of schools within the area.

These may be obtained :—

(a) By selection by the Council from among its own members, or from outside ; or

(b) By nomination or recommendation of other bodies where it appears desirable.

(3) There must be at least one woman on the Committee.

OPTIONAL PROVISIONS.—

(a) Among the bodies who may be invited to nominate or recommend are included Associations of Voluntary Schools. Section 17 (3) (b).

(b) Among the persons whom it may be desirable to appoint as members of the first Committee are the members of School Boards existing at the time of the passing of the Act.

(c) A separate Education Committee may be established for all or any purposes for any area within a county ; or separate Education Committees may be established, for the whole or any part of a county, to deal with special departments of work. The latter mode of distribution is guarded by the provisions of Section 17 (6).

(d) A Joint Committee may be formed for all or any purposes by a combination of counties, boroughs or urban districts.

In the case of such a Joint Committee it is necessary that a majority of the members should be *appointed* by the Councils of the counties, boroughs or districts concerned ; it does not appear necessary that a majority should be *members* of those Councils.

(The formation of such Committees may be convenient in the case of boroughs or urban districts which may not desire to relinquish permanently their powers under the Act, but may, nevertheless, desire to work in close co-operation with the county in which they are situated.)

V.—Nomination or Recommendation of Other Bodies.

It is probable that the representation of certain educational interests within the area of a Council may be effected most

satisfactorily by the nomination of a member of the Committee by some society within the area or representative of some educational interest within the area.

This course may save the Council some trouble in selection, and may also be most satisfactory to the society which is to be represented. In other cases it might be more convenient that a society should be invited to recommend a representative, or to recommend certain persons from among whom the Council might choose a representative.

In the case of nomination it must be assumed that the Council places itself in the hands of the body whom it invites to nominate.

In the case of recommendation, suggestions might be made on both sides with a view to the choice of some one acceptable to the Council and representative of the interest concerned.

In each case the appointment is made by the Council, but either method would ensure that the person appointed was considered to be really representative by the interest concerned.

VI.—Duties of the Board of Education in respect of Schemes.

(1) To give publicity to the provisions of the proposed scheme. Section 17 (6).

(2) To hold an inquiry if necessary. Section 23 (10).

(3) To be satisfied that where the scheme provides for more than one Committee due regard is paid to the importance of co-ordinating all forms of education. (See Section 17 (6).)

It would not be desirable to perpetuate the severance of elementary from higher education by the creation of separate Committees for each. But it may often be convenient to establish sub-committees which might, under the supervision of the Education Committee, administer the various forms of education.

(4) In the event of a scheme not having been made, or not having been approved within twelve months after the passing of the Act, to make a Provisional Order for the purposes of a scheme.

(A ground on which the Board might be asked to withhold its approval of a scheme would be the non-representation or inadequate representation of some of the educational interests within the area. An educational body or association might complain—

(a) That the interests with which it was concerned were wholly unrepresented ;

(b) That the person chosen to represent it was not really representative ;

(c) That no security was afforded by the scheme for the continuance of its representation.

Points such as these should be carefully considered in framing a scheme.)

VII.—Further Powers of County Council.

DELEGATION to the Council of any borough, district or parish on conditions to be agreed upon, of the powers of *management* which it possesses in respect of any school or college within the area of such borough, district or parish.

ACQUISITION.—By arrangement and with the approval of the Board of Education—of the powers of a borough or urban district which is a Local Education Authority under the Act, and which may relinquish to the county its powers under Part II. or Part III., or both.

VIII.—Disqualifications.

The circumstances which would disqualify a person for membership of the Council disqualify for membership of the Committee appointed by the Council, except that no person is disqualified by his holding office in a school or college aided, provided or maintained by the Council.

A person is disqualified for voting in the County Council on any question relating only to Part III. if he is elected for a division which consists wholly of a borough or urban district or of a part of such borough or district which is a Local Education Authority for Part III. of the Act. (See Section 23 (3).)

IX.—Draft Scheme.

Among the more important matters for which a draft scheme should provide are the following:—

1. The number of the proposed Committee.
2. How many are required to be members of the Council.
3. The educational interests which it is proposed should be represented.
4. How it is proposed to secure their representation—by selection, recommendation or nomination.
5. What security is provided for the permanence of such representation.
6. What provision is made for the appointment of women.
7. If more Committees than one—are they constituted for separate areas or for separate administrative duties—their proposed numbers and composition—the number, duties and composition of sub-committees.
8. The term of office of members of the Committee, and the arrangements for retirement and the filling of vacancies, occurring casually or at stated times.

(3) HIGHER EDUCATION.

Definition.

The definition of 'education other than elementary' is given in Section 22 (3), which provides that the power to supply or aid the supply of education other than elementary includes a power to train teachers and to supply or aid the supply of any education except where that education is given at a public elementary school. It would appear, therefore, that teachers may receive, at any rate, a part of their training in a public elementary school; but apart from this no education can be given in a public elementary school under Part II. of the Act. Provided the education is given otherwise than in a public elementary school, there appears to be no limit to the scope or the character of the education provided. The restrictions of the Technical Instruction Act are entirely swept away. Ancient languages, literature, law, medicine, theology, professional subjects generally, all seem to come within the term of 'education,' and the teaching of these subjects may be supplied or aided by a Local Education Authority under Part II. of the Act in any institution other than a public elementary school. The restriction attached to technical instruction in the Technical Instruction Act, 1889, to the effect that it shall not include the practice of any trade or industry or employment appears to be entirely removed with the repeal of that Act, and, provided that the teaching afforded comes within the meaning of the word 'education,' a student may be trained in any profession or taught a trade. A case in point is the teachers' profession, which, apparently in order to avoid any misconception arising from an unconscious tendency to adhere to the restrictions of the Technical Instruction Acts in interpreting the present Act, is regarded as of sufficient importance to be specifically mentioned as coming within the powers of the Local Education Authority.

The Act gives no definition whatever of the term 'education' taken by itself. The question whether any particular kind of teaching may be given outside an elementary school under Part II. of the Act depends simply upon whether or not this teaching is 'education.' If the training of a boy in arithmetic, book-keeping, geography, shorthand and other subjects on the commercial side of an ordinary school may be regarded as 'education'; if the training of an artist to draw and design, to paint and to model, forms a portion of his education; if the training of a teacher in school management and psychology and in the method of presenting his subjects to his pupils forms part of his education, as it clearly does under the Act, it seems to be impossible to say that any course of

professional, technical or manual instruction, so framed as to train the faculties of the student and to draw out his latent powers of dealing with the subject of instruction, is not 'education'; and, consequently, under the present Act, there seems nothing to prevent Local Education Authorities providing classes for the training, in subjects bearing on their future industry, of young men and women who are looking forward to being engaged in any trades, industries or employments. The Act places no restriction whatever upon the granting of aid to schools and institutions conducted for private profit, and, consequently, there seems to be nothing in the Act to prevent an apprenticeship fee being paid to any employer, provided that he affords to the apprentice a training in the principles of his trade which can be properly regarded as educational.

Powers of Local Education Authority — Obligatory and Otherwise.

While it is compulsory upon the Local Education Authority to provide efficient school accommodation and efficient instruction for the purposes of Part III. (elementary education) of the Act and this obligation can be enforced by *mandamus*, there is no such obligation in connection with the provision of education other than elementary, except in so far as it is implied in the obligation upon certain Local Education Authorities to apply the Residue under Section I. of the Local Taxation (Customs and Excise) Act, 1890, to this purpose, carrying forward for the like purpose any balance which may not be expended within the year. Apart from this compulsory ear-marking of the Residue Grant for the purposes of higher education, the Act merely provides that the Local Education Authority shall consider the educational needs of their area and take such steps as seem to them desirable, after consultation with the Board of Education, to supply or aid the supply of education other than elementary, and to promote the general co-ordination of all forms of education. The Local Education Authority are not compelled to do more than they deem desirable, and they can if they please avoid altogether the raising of any rate under Part II. of the Act. It is probable, however, that in many areas the Local Education Authority will find the claims of education so imperative as to render obligatory the utilisation of their rating powers on behalf of higher education; for it must be borne in mind that, by reason of certain branches of education having been sustained hitherto by the rate levied for elementary education, an additional charge will now be made upon the funds available for higher education, and that the Residue

Grant under the Local Taxation (Customs and Excise) Act, 1890, is practically pledged to meet claims which are likely to expand rather than to contract.

If the Local Education Authority determine to avail themselves of the power given and to provide secondary schools, technical institutes, schools of art, university colleges or other institutions for higher education, they must consult the Board of Education with regard to their proposals, presumably with reference to the subjects taught as well as the character and constitution of the institutions in which the teaching is to be given; but having consulted the Board of Education it seems that the Local Education Authority may do what they deem to be desirable, and under Part II. of the Act the Board of Education are in much the same position with reference to the Local Education Authority as is the Statutory Committee, if a Local Education Authority elect not to delegate any of their powers to a Committee. The Board of Education must be consulted, but the Local Education Authority are under no obligation to abide by their recommendations. The principle in most cases appears to be that the Local Education Authority must submit to being enlightened in connection with any proposal, but need not frame their conduct in accordance with that light.

Apart from the defect due to the division of the Local Education Authority between elementary education and education other than elementary in non-county boroughs with a population of over 10,000 and urban districts of over 20,000, and the inability of the Local Education Authorities to provide scholarships tenable in what may be called higher elementary schools, there are two points of importance for which provision was made in the Technical Instruction Acts, and which have been altogether omitted in the present Act. They are :—

(1) The obligation on the part of the managers of schools aided under Part II. of the Act to make a return to the Local Education Authority of the income and expenditure of their schools or institutions in such form and audited in such manner as the Local Education Authority may require, and

(2) The obligation on the part of the Local Education Authority to be represented upon the Governing Body of any school or institution aided by them.

Both these statutory requirements provided by the Technical Instruction Act have proved exceedingly useful, and have done much to facilitate the work of Technical Instruction Committees and to safeguard the interests of public finance. The first requirement not only compelled the school authorities to render

such accounts to the Local Authority as would enable the Local Authority to ascertain that the moneys granted by them were properly expended for the purposes for which they were granted, but also provided the Local Authority with the necessary information to guide them in determining what (if any) grants should be made from time to time to meet the requirements of the school or institution. Indirectly the provision had another beneficial effect. The District Auditor could demand to be supplied with copies of the accounts of each institution aided in order to satisfy himself that the Local Authority carried out this requirement of the Technical Instruction Acts, and when the school accounts were submitted to him he was in a position to make suggestions respecting any improvements which might be made in the keeping of those accounts; and this was greatly to the advantage of the school authorities. The second of the statutory requirements above referred to has proved of still greater importance. It has enabled the Local Authority to come into direct touch with the Governing Bodies of the schools or institutions aided and to be made acquainted by their own representatives with any matters connected with the conduct of the school or institution which require their attention.

The present Act appears fully to recognise the importance of the Local Education Authority, and even of the minor Local Authority, being represented upon the Governing Bodies of non-provided elementary schools, though it has omitted the corresponding provision in the case of other schools and institutions. (In this connection, reference should be made to the remarks in parenthesis on pp. 46-7.) It may, of course, be urged that it is open to the Local Education Authority in the exercise of the wide discretion given them in Part II. of the Act to require that both these conditions should be fulfilled, but it is much easier for a Local Education Authority to insist upon the fulfilment of those conditions which are statutory than of those which depend simply on their own Standing Orders, and the omission of these provisions from the Act, although it may make no difference ultimately in the submission of accounts to the Local Education Authority or in the representation of the Local Education Authority on the Governing Body of aided schools or institutions, will nevertheless greatly increase the extent of the negotiations which will take place in some cases between the Local Education Authorities and the authorities of the schools in order to secure the fulfilment of these conditions.

There is a third point in connection with the difference between the conditions of aided institutions under the present Act and under the Technical Instruction Acts. The latter provide that no aid

should be given by the Local Authority to an institution conducted for private profit; the present Act has no such provision. This condition is closely associated with the requirement that accounts should be rendered and that the Local Authority should be represented on the Governing Bodies of the institutions aided. Under the present Act there appears to be nothing to prevent grants being made to schools which are conducted for private profit in the same way as to schools which are on a purely public basis.

Scholarships.

Section 23 (1) enables the Council to provide vehicles or pay reasonable travelling expenses for teachers or children attending school or college. This provision seems to apply equally to elementary education provided under Part III. of the Act and to higher education under Part II., but the award of scholarships and the payment of fees for pupils appears to be strictly confined to students other than the pupils of public elementary schools. The authorisation to award scholarships and pay fees is contained in Section 23 (2), which provides that "the power of a Council to supply or aid the supply of education, other than elementary, . . . shall include power to provide or assist in providing scholarships for, and to pay or assist in paying the fees of, students ordinarily resident in the area of the Council at schools or colleges or hostels within or without that area." The power of awarding scholarships and paying school fees, therefore, seems to be strictly confined to supplying or aiding the supply of education other than elementary, and children who, being free from the statutory obligation to attend school, are continuing in the ex-Standard sections of a public elementary school to the age of, say, 15½, will be ineligible to receive scholarships from the Local Education Authority under the Act, and this disability will continue even in those cases in which, under special circumstances, the Board of Education extend the limit of age to which students may be kept in a public elementary school in consequence of the absence of any provision for higher education in the district. At present junior scholarships awarded by Local Authorities under the Technical Instruction Acts are largely held in the upper sections of public elementary schools by children between the ages of 13 and 15; and, if scholarships are to be given to children to enable them to continue their education for a period of, say, two years from the time of their reaching Standard VII., or being freed from the statutory obligation to attend school, and at the end of the period the children are destined for industrial life, the higher elementary

school may in many cases be better adapted to the requirements of the scholars than the middle Forms of a secondary school. It seems not improbable that this provision of the Act will have to be reconsidered by Parliament at a later date if Local Education Authorities are to be encouraged to retain children at public elementary schools till the end of the school year in which they attain the age of 15, and if the education provided for such children in the ex-Standard departments of the school is to continue to be regarded as elementary education provided under Part III. of the Act.

(4) THE LOCAL EDUCATION AUTHORITY.

Part I. commences with a very clear statement that for the purposes of this Act the Council of every county and of every county borough shall be the Local Education Authority. Unfortunately it proceeds forthwith to modify this simple statement in respect of the area of the administrative county, and provides that the Council of a borough with a population of over 10,000, or of an urban district with a population of over 20,000, shall be the Local Education Authority for the purposes of Part III. of this Act, *i.e.*, for the purposes of elementary education, so that, unless the powers under Part III. are surrendered to the County Council by the voluntary act of the Council of the borough or urban district, there will be in these boroughs and urban districts two Local Education Authorities, the major Authority, the County Council, having powers for all educational purposes other than elementary, and the minor Authority, the Council of the borough or urban district, having powers for the purposes of elementary education, besides the power of raising and spending a penny rate for higher education; and thus, in these areas, the public elementary schools and the secondary and technical schools and other educational institutions which are not of the nature of public elementary schools may be placed under distinct Authorities and some of the difficulties connected with the want of co-relation of these different classes of schools, which have been so acutely felt in large towns during the last few years, may be reproduced under the present Act, although the worst defects of such want of co-relation are at present felt only in the larger county boroughs.

In County Boroughs.

Within the area of a county borough the Council of the borough are the sole Local Education Authority for all purposes. They take over the powers of the School Board in those cases where a

School Board have previously existed, they combine with them the power of the technical education Authority and add the wide powers given by the present Act for supplying or aiding the supply of education other than elementary, free from all the restrictions of the Technical Instruction Acts. In the county borough no distinction need be drawn between the employment of the rate for the purposes of elementary education and for purposes other than elementary, inasmuch as no limit is fixed to the amount of the rate which may be raised for either of these purposes, and no question will arise even in connection with the amount of Government grant, provided that the amount raised by rate for purposes of elementary education exceeds threepence in the £, which is tolerably certain to be the case in all the county boroughs. As there is but one Local Education Authority within the area, the duty prescribed by Part. II. of the Act of promoting the general co-ordination of all forms of education ought to be comparatively simple, and the funds at the disposal of the Council of a county borough for educational purposes will include the whole of the Residue under Section 1 of the Local Taxation (Customs and Excise) Act, 1890, which henceforth is compulsorily devoted to the purposes of education other than elementary both in county boroughs and in administrative counties.

In Administrative Counties.

Outside the county borough the conditions are far more complicated. In the rural districts there will, it is true, be but one Local Education Authority, and but one Authority which can raise a rate for educational purposes, *viz.*, the County Council; but outside these happy areas a certain amount of overlapping of powers and duties at once commences. The Council of the non-county borough with a population of less than 10,000, or that of the urban district with a population of less than 20,000, are not a Local Education Authority within the meaning of the Act, but they have concurrent power with the County Council of raising a rate for the purpose of supplying or aiding the supply of education other than elementary, provided that such rate does not exceed one penny in the £. Except to permit that this privilege may be surrendered to the County Council if the Local Authority so desire and on such surrender will thereby cease, the Act merely provides the power for the Council of the small non-county borough or urban district to raise the rate and to spend it on education other than elementary, and then leaves the Council entirely to their own devices, without further guidance or restriction. In the non-county boroughs with a population of more than 10,000 and in urban

districts with a population of more than 20,000 there are triplicate powers of rating and administration. In the first place, the County Council are to be the sole Local Education Authority for all purposes other than elementary, with the power of raising a rate of twopence in the £ for those purposes or such higher rate as the County Council, with the consent of the Local Government Board, may fix. Concurrently with this power possessed by the County Council, the Council of the borough or urban district have the power of supplying or aiding the supply of education other than elementary to the extent of a penny rate over their area; but the Council of the borough or urban district are themselves the Local Education Authority for the purpose of elementary education, with the power of raising an unlimited rate for this purpose. It is, therefore, possible to conceive of a condition within one of these areas in which (a) the Council of the borough or urban district supply their own secondary education as far as a penny rate will enable them to do so, and (b) conduct their own elementary schools, co-ordinating these two systems of education, while (c) the County Council expend a twopenny rate levied over the same area, as well as over any adjoining area which can utilise institutions within the borough or urban district, supplementing such rate by the corresponding share of the Residue Grant, and devoting the whole to the establishment of an independent system of secondary and technical education which will compete with that established by the minor Local Authority for the attendance of the townspeople, while it offers special facilities to persons residing outside the area of the minor Local Authority, but within access of the schools. This would be a condition of affairs greatly to be deplored; and it is, therefore, much to be hoped that non-county boroughs and urban districts which are Local Education Authorities for the purposes of elementary education will avail themselves of the provisions of Section 20 (b) of the Act and surrender these powers to the County Council, accepting in return from the County Council a delegation of powers under Section 20 (a), which provides that an Authority having powers under this Act "may make arrangements with the Council of any county, borough, district or parish, whether a Local Education Authority or not, for the exercise by the Council, on such terms and subject to such conditions as may be agreed on, of any powers of the Authority in respect of the management of any school or college within the area of the Council." Under these provisions it would be possible for the minor Local Education Authority to surrender their powers and title as a Local Education Authority to the County Council, and to receive back by delegation

from the County Council not only the powers so surrendered but the full powers of administering education other than elementary, as well as elementary education, within their area, at the expense of the County Council, subject to such reasonable conditions as might be agreed upon with reference to the facilities to be given to students from outside the area of the minor Authority, and to the representation of the County Council upon any Committee which may be formed by the minor Authority for the conduct of their educational work.

(5) THE COMBINATION OF AUTHORITIES.

Apart from the great advantage in the direction of educational correlation to be derived from the formation of a single Local Education Authority for all grades of education in any district, there is another strong reason for avoiding the duplication of Education Authorities in any part of the administrative area, *viz.*, that, when a Borough or Urban District Council retain their powers as the Local Education Authority for elementary education, the representatives of the district cannot vote in the County Council on any question relating to elementary education in any part of the county. This arrangement may prove to be a serious hindrance to the conduct of the educational business of the Council.

Another difficulty lies in the necessity which will often obtain for the elementary schools of a borough or urban district to be used by children residing outside the area. This is a difficulty which will always exist wherever there are boundaries, and it can only be met by a liberal system of 'give and take.' The difficulty is, however, greatly increased when the boundaries of the areas pass through residential districts, and this is generally the case with a municipal borough or urban district boundary. In the case of a county borough some agreement must be effected between the County Borough Council and the Local Education Authorities of the adjoining districts for the free use of the public elementary schools where necessary; but the fewer the agreements of this kind which have to be made the better for all parties.

From the point of view of educational administration the chief defect of the Act lies in the duplication of Local Education Authorities in the large non-county boroughs and urban districts, and all parties should combine to remedy this defect by taking advantage of the provisions of Section 20 (b), and thus promote the unification of the Local Education Authority. The Borough Council or Urban District Council should retain their power of raising and expending a penny rate for the purpose of supplying or aiding the

supply of education other than elementary; with this rate they could provide, equip and keep in repair buildings for secondary schools, schools of art and technical institutions, while the cost of conducting and maintaining the classes would be defrayed by the County Council. But while retaining their power to levy and expend the penny rate, the Borough Council or Urban District Council should surrender their powers as to elementary education. As conditions for the surrender of these powers to the County Council, the minor Authority might stipulate :—

- (1) That their representative on the County Council should be placed on the County Education Committee;
- (2) That the County Council should give to a Committee nominated by the Borough or Urban District Council (with the addition of certain representatives of the County Council) all the powers of managers in connection with the provided schools in the area, and should delegate to the same Local Committee their powers with reference to the supply of elementary education in the same area;
- (3) That the County Council should delegate to the same Local Committee their powers with reference to supplying or aiding the supply of education other than elementary in the schools or other institutions within the area, subject to agreed limitations with regard to expenditure and the character of the instruction provided;
- (4) That the County Council should delegate to the same Committee the powers of School Attendance Committees in the same area.

For the discharge of these duties the Local Committee will require the services of a Clerk who might also be the chief School Attendance Officer and would be assisted by a sufficient number of Assistant Officers according to the size of the district. These Officers should be provided by the County Council and placed at the service of the Local Committee.

There are many small boroughs and urban districts in which secondary and technical schools have already been provided by the Local Authorities with the assistance of the County Councils, the Local Authorities having raised a penny rate under the Technical Instruction Act, 1889, to meet a contribution from the County Councils out of the Residue Grant. In these areas the Local Committees have worked in close union with the County Councils, and it would be very unfortunate if this co-operation ceased. The best way to secure its continuance would be for the minor Local Education Authority to surrender to the County Council their powers with regard to elementary education

conditionally upon the County Council (a) restoring by delegation powers with reference to the detailed management of schools, and (b) further delegating their own powers with respect to education other than elementary.

We have already emphasised the desirability of the Councils of non-county boroughs and urban districts who are Local Education Authorities for Part III. only, but which have the power of raising a penny rate for the purposes of Part II., surrendering their powers to the County Council on condition of receiving from the County Council, by arrangement, certain delegated powers with reference to the conduct of the whole field of education within their areas. In some cases, it may also be desirable to extend the areas of such Local Committees by the addition of districts from the surrounding portions of the county, which can be served by schools within the areas, representatives of the surrounding districts being added to the Local Committee. But there are many other ways in which co-operation may advantageously be effected between the various Authorities having powers under the Act. For example, a Council who are a Local Education Authority under Part III. may determine not permanently to surrender their powers, as such, but may by arrangement with the County Council establish a Joint Committee to whom both Councils would from time to time, for a limited period, delegate all or any of their powers of providing and maintaining schools within the district of the minor Local Authority. Similar arrangements for co-operation may with advantage be made between the Councils of county boroughs and the Councils of the surrounding administrative counties, neither Local Education Authority surrendering any of their powers, but endeavouring to secure by co-operation that the educational institutions provided within the county boroughs should be available for all persons within the administrative county who reside within reach thereof. In a similar way the Councils of county boroughs or non-county boroughs may combine to form Joint Committees with the Councils of urban districts in their neighbourhood. Still further co-operation is possible under the Act, for even the Councils of administrative counties and county boroughs may combine for the discharge of the whole or any portion of their educational functions. Indeed, there is nothing in the Act to prevent all the Local Education Authorities in England and Wales uniting in one great Association for the conduct of both elementary and higher education throughout the whole country—there is nothing to prevent this arrangement except its practical impossibility. But while it is scarcely to be



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (CHEMICAL LABORATORY). (See page 105.)



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (PHYSICAL LABORATORY). (See page 105.)

expected that the Councils of administrative counties which represent large areas, or of county boroughs which are generally very far apart, will combine for ordinary educational purposes, combinations of these bodies may very well be effected for the purpose of maintaining specialised institutions. For instance, a coal-field may occupy portions of two or three administrative counties and be so situated that two or three county boroughs are also greatly interested in its operations; all these Local Education Authorities might properly combine in the conduct of a local college established primarily for mining engineers. A number of agricultural counties might similarly combine for the establishment of an agricultural college, while Local Education Authorities on the seaboard might unite for training to be given to fishermen and sailors.

Any scheme of co-operation which may be established should keep in view the unity of education, and the body which is the ultimate Local Education Authority dealing with higher education should also be the ultimate Local Education Authority dealing with elementary education in the same area, although either the one or the other branch of education might be administered with the help of advisory Committees, or Committees to which certain executive powers are delegated, provided that the teachers connected with all grades of education may look to one Authority as that to which they are ultimately responsible.

(6) STATUTORY EDUCATION COMMITTEES.

While the County Council or the Council of the county borough, non-county borough or urban district are to *be* the Local Education Authority, they are not generally to *act* as such without advice, but are to establish an Education Committee or Education Committees constituted in accordance with a scheme made by the Council and approved by the Board of Education.

The only exception to this rule is the municipal borough which has a population under 10,000 or the urban district with a population under 20,000, the Council of which have powers only for the purposes of education other than elementary, and then only to the extent of expending their own penny rate together with any other funds which the County Council may assign to them. If such a Council determine that an Education Committee is unnecessary, it is not obligatory on them to establish a Committee. It is probable that these smaller Local Authorities have been allowed to retain their power of raising a penny rate for educational purposes because many of them have borrowed money

and built schools on the security of this rate. As far as the powers actually given to these Councils by the Act are concerned, it may be unnecessary, in many cases, for an Education Committee to be appointed; but it is to be hoped that the services of these Councils will be utilised by the County Councils in an advisory capacity and also that many powers relating to the management of local schools will be delegated to them by the County Councils, and in these cases it will be desirable that a Committee should be appointed.

In all other cases the Statutory Committee is essential, and the first duty of a Local Education Authority under the Act is to prepare a scheme for the constitution of this Committee. The powers of the Council, except those of raising a rate or borrowing money, are to "stand referred" to this Committee, and the Council are to receive and consider the report of the Committee on any matter before exercising their powers, unless the matter is urgent. Thus far the Committee are purely consultative, and this is all that is compulsory upon the Local Education Authority; but the Authority *may*, if they think fit, "delegate to the Education Committee, with or without any restrictions or conditions, any of their powers under this Act, except the power of raising a rate or borrowing money."

Schemes for the Establishment of Committees.

In making a scheme for the constitution of the Education Committee, the following conditions are statutory:—

- (a) The appointment by the Council of a majority of the Committee out of the members of the Council, unless, in the case of the Council of a county, the Council shall otherwise determine;
- (b) The appointment by the Council of persons experienced in education and acquainted with the needs of the schools;
- (c) The inclusion of women; and
- (d) The appointment, if desirable, of members of existing School Boards as members of the first Committee.

A person who is disqualified from serving on a Council by reason of his holding an office or place of profit or having an interest in a contract or employment is thereby disqualified from serving on the Education Committee, except that no one shall be disqualified through holding office in a school or college aided, provided or maintained by the Council.

For all or any purposes of the Act, separate Committees may be formed by a Council for different areas within a county, and joint

Committees may be formed for combinations of counties, boroughs or urban districts or any parts thereof ; but, when more than one Committee is proposed for a county, the Board of Education, before approving the scheme, are to satisfy themselves that due regard is paid to the importance of the general co-ordination of all forms of education.

In districts which come under the provisions of the Welsh Intermediate Education Act, 1889, the schemes must make provision for the transfer, to the Local Education Authority, of the powers, duties, property and liabilities of the County Governing Body.

Delegation of Powers by Local Education Authorities.

It is to be expected that in all cases considerable powers will be delegated to the Statutory Education Committees. In delegating their powers a Council may very properly require :—

- (1) That the Committee shall present annually, through the Finance Committee of the Council, a budget showing the estimated receipts and expenditure for the ensuing year, set forth under such heads as the Council may prescribe, and that the expenditure under any head shall not be exceeded without the Council's sanction ;
- (2) That the Committee shall present annually a full report of their proceedings, accompanied by a statement of their accounts for the year, and shall also present *interim* reports either quarterly or at such other intervals as the Council may require ;
- (3) That the Committee shall require the Council's sanction before incurring liabilities which extend beyond the period covered by the Committee's estimate, as, for example, the taking of a lease ;
- (4) That the Committee shall obtain the Council's sanction before entering into any other obligation or agreement which requires the seal of the Council.

Apart from the special matters on which the sanction of the Council is required, it is desirable that the Committee should have full power of action from year to year and that the amount required by the Committee from the Council, as set forth in the estimates approved by the Council and including grants from the Board of Education, as well as the Residue Grant under the Local Taxation (Customs and Excise) Act, 1890, and the proceeds of the education rate, should be paid over to the Committee as and when received by the Council. It will doubtless be objected to this arrangement that the educational administration is removed a

step from the direct control of the ratepayers. The removal, however, is very slight; for the Committee is a Committee of the Council, and a majority of the members are Councillors, except where a Council of a county otherwise determine—an exception hardly likely to operate in many instances, if at all. Moreover, it may easily be provided in the scheme that the Council members of the Committee shall be the representatives of districts scattered, as nearly as may be, uniformly over the county area; and inasmuch as the whole expenditure of the Committee has to be annually approved by the Council, the estimate being accompanied by a full report of the Committee's proceedings during the preceding year, the Council can control the proceedings of the Committee by their command of finance. Again, the Council may, as suggested above, in their reference to the Committee, reserve to themselves the power of dealing with questions which they deem to be of sufficient importance, especially those which involve increased permanent expenditure. The slight disadvantage arising through the delegation of powers is far more than compensated by relieving the Council from a mass of detail, with which they are less competent to deal than the Committee they have themselves appointed for the purpose. By requiring reports at sufficiently short intervals, the Council may secure as many opportunities as they desire of reviewing the work of their Committee.

(7) ELEMENTARY SCHOOLS.

Provision and Management.

OBLIGATION TO GIVE EFFECT TO THE ACT.—Section 16 has an important bearing upon certain suggestions that have been made to the effect that Local Education Authorities who are not satisfied with the terms of the Act should refuse to carry out its provisions and thus render it inoperative in their areas. The Section provides that, if the Local Education Authority fail to fulfil any of their duties under the Elementary Education Acts or this Act, or fail to provide such additional school accommodation as, in the opinion of the Board of Education, is necessary, the Board may, after holding a public inquiry, make an Order upon the Local Education Authority, and the same may be enforced by *mandamus*. The obligation to provide sufficient school accommodation is a matter of primary importance. No clause imposing the obligation upon the Local Education Authorities was included in the Bill as first presented to Parliament, although the corresponding obligation laid upon School Boards by the

Elementary Education Acts was included among the enactments to be repealed in the Schedule. Some alarm was, in consequence, felt lest it should be the intention of Parliament to abolish the statutory obligation to provide sufficient school accommodation in all districts and thus, in practice, to render nugatory the statutory obligation to attend school. Happily, the alarm proved to be unfounded, the omission to substitute a new provision for the obligation repealed having been purely accidental.

The Local Education Authority must provide such an amount of public school accommodation as the Board of Education may consider necessary in any part of their area, and (Section 7) shall maintain and keep efficient all public elementary schools within their area which are necessary.

PROVIDED SCHOOLS.—In provided schools, where the Local Education Authority are the Council of a county, there are to be a number of managers not exceeding four appointed by the Council, together with a number not exceeding two appointed by the minor Local Authority; but where the Local Education Authority are the Council of a borough or urban district they may appoint such managers as they please.

NON-PROVIDED SCHOOLS.—In the case of non-provided schools the obligation on the part of the Local Education Authority to maintain a school is conditional upon—

- (a) the managers carrying out the directions of the Local Education Authority as to the secular instruction to be given in the school, including any directions with respect to the number and educational qualifications of the teachers and for the dismissal of any teacher on educational grounds; and if the managers fail to carry out such directions the Local Education Authority may carry them out as if they were the managers;
- (b) the Local Education Authority having power to inspect;
- (c) the consent of the Local Education Authority being obtained for the appointment of teachers and their dismissal, except on religious grounds;
- (d) the managers providing the school buildings free of charge, carrying out all landlords' repairs in connection with them and making such alterations and improvements in the buildings as may be reasonably required by the Local Education Authority;
- (e) the managers allowing the Local Education Authority the use of any room in the school on not more than three days a week for any educational purpose if required.

Unless these conditions are fulfilled and the school is efficiently maintained by the Local Education Authority, the school will be

unable to obtain a Parliamentary grant ; so that, even if a non-provided school possessed sufficient endowment to enable it to be carried on by its present managers with the help of the Parliamentary grant but without rate aid, the school could not remain independent of the Local Education Authority and continue to receive its Government grant. In this respect all non-provided schools are placed in very much the same position as new science and art and secondary schools under Clause VII. of the Regulations of the Board of Education, except that Clause VII. only requires recognition of the school and the approval of the managers, teachers and time-table on the part of the Local Authority, whereas the present Act requires, in the case of elementary schools, much more. In this respect an exception is made in Section 15 in favour of marine schools and boarding institutions which may receive a Parliamentary grant though not maintained by the Local Education Authority. Section 7 (5) empowers the Local Education Authority to select between candidates for pupil-teacherships in non-provided schools, and Section 7 (6) is the well-known Kenyon-Slaney provision.

Subject to the powers reserved to the Local Education Authority, the managers of non-provided schools are to have all the necessary powers of management, including the power of appointing and dismissing teachers ; but it will be remembered that the Local Education Authority must consent to the appointment of a teacher on educational grounds, and can dismiss a teacher for reasons other than matters connected with religious teaching. The foundation managers are to be appointed under the Trust Deed of the school, but, when the Trust does not make adequate provision, the Board of Education may make an order to meet the case, having regard to the ownership of the school building and the principles on which the school has been conducted. When the endowment of the school is dependent upon any qualification of the managers, the qualification of the foundation managers only shall be regarded. [This last provision (Section 11 (7)) is of considerable importance, for some difficulties have arisen under the Technical Instruction Acts where the Local Authority have appointed on the Governing Bodies of denominational schools representatives who have not belonged to the particular denomination specified in the Trust Deed. In these cases there is no doubt that the representatives have powers under the Technical Instruction Acts to vote in all cases respecting the application of the grants made by the Local Authority under those Acts ; but when, as is generally the case, the representatives of the Local Authority are Governors for all purposes (through a special clause introduced into the scheme of the school or

otherwise), a difficulty may arise in the exercise of powers outside the Technical Instruction Acts. In the present Act the full powers of all representative managers of public elementary schools are made perfectly clear; but, as the Technical Instruction Acts are repealed, and the new Act does not demand the representation of the Local Education Authority on the Governing Bodies of schools and institutions other than elementary schools, if representative Governors are appointed to those institutions aided under Part II. of the Act by arrangement between the Local Education Authority and the Governing Bodies, all the requirements of the scheme or other instrument of foundation will probably have to be observed in reference to such Governors.] The Local Education Authority are responsible for the supply of secular education, and the managers of these schools are to be constituted (Section 6) as follow :—

A number of foundation managers not exceeding four, appointed as provided by the Act, together with a number of managers not exceeding two appointed—

- (a) Where the Local Education Authority are the Council of a county, one by that Council and one by the minor Local Authority; and (b) where the Local Education Authority are the Council of a borough or urban district, both by that Authority.

NEW SCHOOLS.—Any existing school in which the average attendance is not less than 30 is to be regarded as a necessary school and is to be maintained by the Local Education Authority, provided that the prescribed conditions are fulfilled by the managers. When it is proposed to provide a new school either by the Local Education Authority or any body of voluntary managers, public notice has to be given, and objections made within three months are to be considered by the Board of Education, and the Board are to decide whether the school is necessary and whether a school provided by the body making the proposal is best suited to meet the requirements of the district. A transfer of a public elementary school to or from a Local Education Authority is, for this purpose, to be regarded as the provision of a new school.

The Grouping of Schools.

From what has been stated it will be seen that, when the Local Education Authority are the Council of a borough or urban district, so that there are no minor Local Authorities within the area, the Local Education Authority may appoint the whole of the managers of any provided school and one-third of the managers, generally two representatives, of each non-provided

school; but when the Local Education Authority are a County Council, they are to appoint not more than four managers for any provided school, and the minor Local Authority are to appoint not more than two. Schools may, however, be grouped under one body of managers, or, in special cases, the number of managers may be increased, provided that the number of each class of managers is proportionately increased. In the case of grouped schools provided by the Local Education Authority, the number and mode of appointment of the managers are entirely at the discretion of the Local Education Authority. Non-provided schools can be grouped only with the consent of their managers, and the number and mode of appointment of the managers of the groups are to be the subject of agreement between the managers of the schools and the Local Education Authority, with an appeal to the Board of Education in the event of disagreement; but in all cases of schools grouped under a County Council due provision is to be made for the representation of minor Local Authorities on the bodies of managers.

Fees.

Section 14 implies that the continuance of fees in a non-provided school will be at the discretion of the Local Education Authority. The fees apparently are to be received in the first instance by the Local Education Authority as the body responsible for the maintenance of the school, and such portion is to be paid over to the managers (to meet their charges upon the building, etc.) as may be agreed upon, or, in default of agreement, determined by the Board of Education. It is not probable that many appeals will be made to the Board of Education under this Section, as the Local Education Authority can, apparently, prohibit any fees to be charged, if they are unable to agree with the managers respecting their share.

Endowments.

Section 13 deals with endowments. These, and the discretion of trustees with respect to them, are not to be affected by the Act; but, if the income must be applied in whole or in part for the purposes of a public elementary school for which provision is to be made by the Local Education Authority, the whole or the part so affected is to be paid to that Authority, and, if the Trusts do not determine the precise amount so affected, it is to be determined by the Board of Education, in connection with whose decision a public inquiry may be demanded. The money thus received by a County Council is to be credited to the education rate levied in the district served by the school, or it may be paid by the Council to the Overseers in relief of the poor rate in the district. It is

probable that this Section of the Act will lead to some difficult questions. We have before us the case of a voluntary school with an endowment of over £1,000 a year. The scheme of the school merely provides that the income of this endowment shall be administered by the managers (constituted by the scheme) for the purposes of a public elementary school, to which a higher grade section may be added, if funds permit. To what extent, if any, must this income be applied "for those purposes of a public elementary school for which provision is to be made by the Local Education Authority." Under this Act, in order to earn a Parliamentary grant, such a school, apart from its higher grade section, must be maintained by the Local Education Authority. Extensions of the building and landlords' repairs are not part of the provision to be made by the Local Education Authority; so that these requirements would properly form a first claim on the income of the endowment, since no portion of that income is specifically appropriated. If any portion of the remainder were deemed to be available for the purposes of the elementary school only, it would be forfeited to the Local Education Authority in relief of the education rate, and the pious founder, if aware of its destiny, would probably wish that other provisions had been made for its application. In this particular case it may be that the 'discretion' of the Trustees will enable the whole of the residue of the income, after making provision for the requirements of the buildings, to be used for the purposes of a higher grade or continuation school which will be regarded as outside "those purposes of a public elementary school for which provision is to be made by the Local Education Authority." This school Trust is fortunate, perhaps, in possessing the provision for a higher grade section. If there were no such provision, there might be great difficulty in determining how far the managers had discretionary powers over the endowment, which is sufficient, with the help of the Government grants, to enable the school to be conducted as a public elementary school without any aid from the rates whatever.

Besides the provision and up-keep of the buildings, it seems clear that the managers may charge to the endowment any expenses incurred by them in the provision of religious instruction. If the terms of the Trust will permit, there is almost an unlimited field for the application of the endowments of elementary schools in the provision of scholarships tenable in the same schools or in schools for higher education; for, although Local Education Authorities have power to award scholarships in connection with education other than elementary, it does not appear from the Act

that scholarships form any part of the "purposes of a public elementary school" for which the Local Education Authority are responsible.

Partial Abolition of the Restrictions of Mortmain on Elementary School Sites.

In 1892 an Act entitled the Technical and Industrial Institutions Act was passed, applying to every institution established to give technical instruction within the meaning of the Technical Instruction Act, 1889, to provide the training, manual or physical, necessary for the above purpose; and in connection with the purposes before mentioned to provide workshops, tools, scientific apparatus, plant of all kinds, libraries, reading rooms, halls for lectures, exhibitions and meetings, gymnasia and swimming baths and also general facilities for mental and physical training, recreation and amusement, and also all necessary and proper accommodation for persons frequenting the institution.

Among other matters the Act provided that Parts I. and II. of the Mortmain and Charitable Uses Act, 1888, and so much of the Mortmain and Charitable Uses Act, 1891, as requires that land assured by Will shall be sold within one year of the death of the testator, shall not apply to conveyances or to assurances by Will made under or for the purposes of this Act. A corresponding provision is introduced into the Education Act, 1902, with reference to any assurance within the meaning of the said Act of 1888 of land for the purpose of a school-house for an elementary school.

(8) A MODEL SCHEME IN OUTLINE.

Number and Classification of Local Authorities.

There are in England and Wales, excluding London, the following local authorities :—

(a) Administrative Counties	62
(b) County Boroughs	67*
(c) Municipal Boroughs exceeding 10,000 population ...	140
(d) Urban Districts ,, 20,000 ,, ...	61
(e) Municipal Boroughs under 10,000 ,, ...	108
(f) Urban Districts ,, 20,000 ,, ...	745
(g) Rural Districts	662
Total	1,845

* The number of county boroughs in England and Wales is now 69, by reason of the recent addition of Rotherham and West Hartlepool; but these changes will not materially affect the scheme set forth in outline.

COUNTY BOROUGHs.—The 67 county boroughs are independent Local Education Authorities. They possess powers to raise unlimited rates both for elementary and for higher education.

NON-COUNTY BOROUGHs AND URBAN DISTRICTS WITH POPULATIONS *exceeding* 10,000 AND 20,000 RESPECTIVELY.—The Councils of the municipal boroughs and urban districts under (c) and (d), 201 authorities in all, are independent Local Education Authorities for elementary education only, but may surrender any of their powers to the County Councils by agreement. These Authorities possess unlimited powers of rating for elementary education, and may raise a penny rate for education other than elementary, but the County Councils possess the power of raising concurrently a twopenny rate for education other than elementary over their areas. In the event of their relinquishing their powers as Local Education Authorities for elementary education to the County Council, they would retain their power of levying a penny rate for higher education, and the moneys available for educational purposes within these areas would be:—

For Higher Education—

- (1) A penny rate raised by the minor Local Authority;
- (2) A twopenny rate raised by the County Council;
- (3) The Residue Grant contributed by the County Council;
- (4) Any contribution from the County Council in respect of facilities offered to students residing outside the area;
- (5) Grants from the Secondary Branch of the Board of Education paid to the County Council as Clause VII. authority;
- (6) School fees and endowments.

For Elementary Education—

- (1) The share of an unlimited rate raised by the County Council over the whole county which corresponds to the area of the minor Local Authority and the surrounding area served by the schools within the area of the minor Local Authority;
- (2) Parliamentary grants received through the Whitehall Branch of the Board of Education, including the Fee Grant, the Aid Grant under Section 10 of the Act and the Agricultural Rating Grant;
- (3) The share of endowments received under Section 13 of the Act, which provides that, where under the Trusts or other provisions affecting any endowment the income thereof must be applied in whole or in part for those

purposes of a public elementary school for which provision is to be made by the Local Education Authority, the whole of the income or the part thereof, as the case may be, shall be paid to that Authority.

Where the income of an endowment is paid to a County Council it has to be credited to the rates raised in the district served by the school to which the endowment is attached and thus serves for the relief of local rates and not for the increase of the funds available to the Council.

NON-COUNTY BOROUGH AND URBAN DISTRICTS WITH POPULATIONS *below* 10,000 AND 20,000 RESPECTIVELY.—The Councils of these municipal boroughs and urban districts, in all 853 Local Authorities, have power to raise a penny rate for higher education concurrently with the twopenny rate which the County Council may raise over the same area ; but these Local Authorities are not 'Local Education Authorities' and have no powers with respect to elementary education. Their services might, however, be utilised by the County Councils for the discharge of the duties of managers of provided schools and as advisory Committees with reference to other schools and institutions in their districts, while they might also act as Clause VII. authorities under the Board of Education, if the Board recognise the delegation of the powers of the County Council under Part II. of the Act to the Local Committee for this purpose. Over these areas the County Council alone can raise a rate (unlimited) for elementary education. For education other than elementary the County Council can raise a twopenny rate and the Borough Council or Urban District Council a concurrent penny rate.

RURAL DISTRICTS.—Over the 662 rural districts the County Council alone can raise a rate for educational purposes, that for elementary education being unrestricted, while the rate for education other than elementary is restricted to twopence in the £, or such additional sum as the Local Government Board may sanction. In these areas the minor Local Authorities might well undertake to assist the County Council as managers of all provided schools within the areas, which schools should be grouped for this purpose.

Conditions in an Average County.

If we may take an imaginary county which is in all respects equivalent to the mean of the counties of England and Wales, we

shall find that the county will comprise, taking the nearest units,—

One County Borough ;

Two Municipal Boroughs over 10,000 population ;

One Urban District over 20,000 population ;

Two Municipal Boroughs under 10,000 population ;

Twelve Urban Districts under 20,000 population ;

Eleven Rural Districts

The rateable value of England and Wales, excluding London, is £146,755,057; that of our mean county, therefore, including the county borough, will be about £2,367,000 and its population about 450,000, the population of England and Wales, excluding London, being 27,989,713. The county borough may be taken to represent a rateable value of £645,000 and a population of 136,000, since the rateable value of the 67 county boroughs is £42,914,887 and their population 9,138,347. For all educational purposes the county borough is independent of the county except in so far as the two Councils may agree to support in common some institution or institutions available to the residents in both areas. Exclusive of the county borough, the administrative county will have a rateable value of £1,722,000 and a population of 314,000, a penny rate producing £7,175 a year. The Residue Grant to the county, inclusive of the county borough, would be about £11,282 a year, since the last-ascertained Residue Grant to the whole country, excluding London, amounted to £699,490 2s. 3d. The share of the county borough would be £3,500, leaving £7,782 for the administrative county. A twopenny rate levied over the whole area, exclusive of the county borough, would produce £14,350 a year, making a total of £22,132 a year available for education other than elementary in addition to the proceeds of a penny rate levied over the areas of the non-county boroughs and urban districts. The rateable value of all the non-county boroughs and urban districts in England and Wales amounts to £52,015,141, so that the rateable value of the corresponding areas in the mean county would be about £839,000, and the proceeds of a penny rate over this area would be £3,496, making the total annual sum available for education other than elementary to be £25,628, supposing that the County Council make no application to the Local Government Board for permission to increase the rate beyond twopence in the £. In the above calculations the *rateable* value has been taken in all cases, *not the assessable* value; so that the proceeds of the rate include any payments made to the Local Authority under the Agricultural Rating Act.

In connection with ratable value and population, it is of interest to notice that the ratable value per head is—

In London	£8·77
In 67 County Boroughs	£4·70
In 1,060 Non-County Boroughs and Urban Districts	£4·57
In 662 Rural Districts	£6·94

The Adjustment of Procedure.

Within the mean county there would be 17 non-county boroughs and urban districts capable of raising a penny rate for higher education; but, of these, only three would be Local Education Authorities having power to raise a rate for elementary education. These latter should relinquish their powers in respect of elementary education to the County Council, and the County Council might delegate to all the 17 minor Local Authorities their powers in respect of elementary education in their districts as well as their powers with respect to any local schools affording education other than elementary, provided that the minor Local Authority themselves contribute the proceeds of a penny rate towards the support of these schools. The minor Local Authority should act through a Committee on which the County Council are represented, and, if the County Council contribute towards the maintenance of schools or other institutions within the area of the minor Local Authority any sums in respect of the attendance of students residing in adjoining rural districts, then representatives of the minor Local Authorities of these districts should also have places on the Committee in accordance with a scheme prepared by the County Council as the basis of their delegation. In this way 17 Local Committees would be formed to co-operate with the County Council and undertake all the detailed work of school management in the non-county boroughs and urban districts, and this would include the provision of a very large part of the educational facilities required by the rural districts. The Councils of the eleven rural districts might very well be utilised in the same way to assist the County Council in providing elementary education within their respective areas, but as rural districts cannot generally support secondary schools it would be well, whenever possible, to combine the urban and adjoining rural districts into educational areas under Joint Committees to which large powers both for secondary and elementary education would be delegated by the County Councils.

Excluding London, the total number of non-provided schools in England and Wales is 13,818 and of board schools 5,371; so that the

mean county may be expected to possess 223 non-provided schools and 87 board schools, or a total of 310 public elementary schools. Elementary schools in large towns are much larger than those in rural districts, and consequently the county borough, although its population is nearly one-third of the whole county, would possess 41 elementary schools, 24 being non-provided schools and 17 provided schools, leaving 269 to the rest of the county, or an average of about ten for each non-county borough, urban district or rural district—a number of schools which might be very effectively supervised by the Local Committee.

In the case of non-provided schools the County Council might possibly think it well to relinquish their right to nominate managers in favour of the minor Local Authority, and in the case of provided schools it is important that the Local Committee should be divided into small sub-committees, each of which would act as managers of a group of schools. In this way the head teacher and staff of each of the schools will become intimately known to some members of the Local Committee who will be able to represent the needs of the school at the meetings of the Committee.

This sketch of the educational agencies which would exist in a mean county may serve to illustrate some of the principal questions which it will be necessary to face in putting the new Act into operation and to emphasise the great importance of mutual agreements for combination of powers and delegation of duties.

(For full Text of the Act see Appendix commencing overleaf.)

APPENDIX.

TEXT OF THE ACT.

An Act to make further provision with respect to education in England and Wales.

[18th December, 1902.]

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

PART I.

LOCAL EDUCATION AUTHORITY.

Local Education Authorities.

1.—For the purposes of this Act the Council of every county and of every county borough shall be the local education authority :

Provided that the Council of a borough with a population of over 10,000, or of an urban district with a population of over 20,000, shall, as respects that borough or district, be the local education authority for the purpose of Part III. of this Act, and for that purpose as respects that borough or district, the expression "local education authority" means the Council of that borough or district.

PART II.

HIGHER EDUCATION.

Power to aid Higher Education.

2.—(1) The local education authority shall consider the educational needs of their area and take such steps as seem to them desirable, after consultation with the Board of Education, to supply or aid the supply of education other than elementary, and to promote the general co-ordination of all forms of education, and for that purpose shall apply all or so much as they deem necessary of the Residue under Section 1 of the Local Taxation (Customs and Excise) Act, 1890, and shall carry forward for the like purpose any balance thereof which may remain unexpended, and may spend such further sums as they think fit : provided that the amount raised by the Council of a county for the purpose in any year out of rates under this Act shall not exceed the amount which would be produced by a rate of twopence in the pound, or such higher rate as the County Council, with the consent of the Local Government Board, may fix.

(2) A Council, in exercising their powers under this Part of this Act, shall have regard to any existing supply of efficient schools or colleges, and to any steps already taken for the purposes of higher education under the Technical Instruction Acts, 1889 and 1891.

Concurrent Powers of smaller Boroughs and Urban Districts.

8.—The Council of any non-county borough or urban district shall have power as well as the County Council to spend such sums as they think fit for the purpose of supplying or aiding the supply of education other than elementary: provided that the amount raised by the Council of a non-county borough or urban district for the purpose in any year out of rates under this Act shall not exceed the amount which would be produced by a rate of one penny in the pound.

Religious Instruction.

4.—(1) A Council, in the application of money under this Part of this Act, shall not require that any particular form of religious instruction or worship or any religious catechism or formulary which is distinctive of any particular denomination shall or shall not be taught, used, or practised in any school, college, or hostel aided but not provided by the Council, and no pupil shall, on the ground of religious belief, be excluded from or placed in an inferior position in any school, college, or hostel provided by the Council, and no catechism or formulary distinctive of any particular religious denomination shall be taught in any school, college, or hostel so provided, except in cases where the Council, at the request of parents of scholars, at such times and under such conditions as the Council think desirable, allow any religious instruction to be given in the school, college, or hostel, otherwise than at the cost of the Council: provided that in the exercise of this power no unfair preference shall be shown to any religious denomination.

(2) In a school or college receiving a grant from, or maintained by, a Council under this Part of this Act,

(a) A scholar attending as a day or evening scholar shall not be required, as a condition of being admitted into or remaining in the school or college, to attend or abstain from attending any Sunday school, place of religious worship, religious observance, or instruction in religious subjects in the school or college or elsewhere; and

(b) The times for religious worship or for any lesson on a religious subject shall be conveniently arranged for the purpose of allowing the withdrawal of any such scholar therefrom.

PART III.**ELEMENTARY EDUCATION.****Powers and Duties as to Elementary Education.**

5.—The local education authority shall throughout their area have the powers and duties of a School Board and School Attendance Committee under the Elementary Education Acts, 1870 to 1900, and any other Acts, including local Acts, and shall also be responsible for and have the control of all secular instruction in public elementary schools not provided by them, and School Boards and School Attendance Committees shall be abolished.

Management of Schools.

6.—(1) All public elementary schools provided by the local education authority shall, where the local education authority are the Council of a county, have a body of managers consisting of a number of managers not exceeding four appointed by that Council, together with a number not exceeding two appointed by the minor local authority.

Where the local education authority are the Council of a borough or urban district they may, if they think fit, appoint for any school provided by them a body of managers consisting of such number of managers as they may determine.

(2) All public elementary schools not provided by the local education authority shall, in place of the existing managers, have a body of managers consisting of a number of foundation managers not exceeding four appointed as provided by this Act, together with a number of managers not exceeding two appointed—

(a) Where the local education authority are the Council of a county, one by that Council and one by the minor local authority; and

(b) Where the local education authority are the council of a borough or urban district, both by that authority.

(3) Notwithstanding anything in this Section—

(a) Schools may be grouped under one body of managers in manner provided by this Act; and

(b) Where the local education authority consider that the circumstances of any school require a larger body of managers than that provided under this Section, that authority may increase the total number of managers, so, however, that the number of each class of managers is proportionately increased.

Maintenance of Schools.

7.—(1) The local education authority shall maintain and keep efficient all public elementary schools within their area which are necessary, and have the control of all expenditure required for that purpose, other than expenditure for which, under this Act, provision is to be made by the managers; but, in the case of a school not provided by them, only so long as the following conditions and provisions are complied with:—

(a) The managers of the school shall carry out any directions of the local education authority as to the secular instruction to be given in the school, including any directions with respect to the number and educational qualifications of the teachers to be employed for such instruction, and for the dismissal of any teacher on educational grounds, and if the managers fail to carry out any such direction the local education authority shall, in addition to their other powers, have the power themselves to carry out the direction in question as if they were the managers; but no direction given under this provision shall be such as to interfere with reasonable facilities for religious instruction during school hours:

(b) The local education authority shall have power to inspect the school:

(c) The consent of the local education authority shall be required to the appointment of teachers, but that consent shall not be withheld

except on educational grounds; and the consent of the authority shall also be required to the dismissal of a teacher unless the dismissal be on grounds connected with the giving of religious instruction in the school:

(d) The managers of the school shall provide the school house free of any charge, except for the teacher's dwelling-house (if any), to the local education authority for use as a public elementary school, and shall, out of funds provided by them, keep the school house in good repair, and make such alterations and improvements in the buildings as may be reasonably required by the local education authority; provided that such damage as the local authority consider to be due to fair wear and tear in the use of any room in the school house for the purpose of a public elementary school shall be made good by the local education authority:

(e) The managers of the school shall, if the local education authority have no suitable accommodation in schools provided by them, allow that authority to use any room in the school house out of school hours free of charge for any educational purpose, but this obligation shall not extend to more than three days in the week.

(2) The managers of a school maintained but not provided by the local education authority, in respect of the use by them of the school furniture out of school hours, and the local education authority in respect of the use by them of any room in the school house out of school hours, shall be liable to make good any damage caused to the furniture or the room, as the case may be, by reason of that use (other than damage arising from fair wear and tear), and the managers shall take care that, after the use of a room in the school house by them, the room is left in a proper condition for school purposes.

(3) If any question arises under this Section between the local education authority and the managers of a school not provided by the authority, that question shall be determined by the Board of Education.

(4) One of the conditions required to be fulfilled by an elementary school in order to obtain a parliamentary grant shall be that it is maintained under and complies with the provisions of this Section.

(5) In public elementary schools maintained but not provided by the local education authority, assistant teachers and pupil teachers may be appointed, if it is thought fit, without reference to religious creed and denomination, and, in any case in which there are more candidates for the post of pupil teacher than there are places to be filled, the appointment shall be made by the local education authority, and they shall determine the respective qualifications of the candidates by examination or otherwise.

(6) Religious instruction given in a public elementary school not provided by the local education authority shall, as regards its character, be in accordance with the provisions (if any) of the trust deed relating thereto, and shall be under the control of the managers: provided that nothing in this sub-section shall affect any provision in a trust deed for reference to the bishop or superior ecclesiastical or other denominational authority so far as such provision gives to the bishop or authority the

power of deciding whether the character of the religious instruction is or is not in accordance with the provisions of the trust deed.

(7) The managers of a school maintained but not provided by the local education authority shall have all powers of management required for the purpose of carrying out this Act, and shall (subject to the powers of the local education authority under this Section) have the exclusive power of appointing and dismissing teachers.

Provision of New Schools.

8.—(1) Where the local education authority or any other persons propose to provide a new public elementary school, they shall give public notice of their intention to do so, and the managers of any existing school, or the local education authority (where they are not themselves the persons proposing to provide the school), or any ten ratepayers in the area for which it is proposed to provide the school, may, within three months after the notice is given, appeal to the Board of Education on the ground that the proposed school is not required, or that a school provided by the local education authority, or not so provided, as the case may be, is better suited to meet the wants of the district than the school proposed to be provided, and any school built in contravention of the decision of the Board of Education on such appeal shall be treated as unnecessary.

(2) If, in the opinion of the Board of Education, any enlargement of a public elementary school is such as to amount to the provision of a new school, that enlargement shall be so treated for the purposes of this Section.

(3) Any transfer of a public elementary school to or from a local education authority shall for the purposes of this Section be treated as the provision of a new school.

Necessity of Schools.

9.—The Board of Education shall, without unnecessary delay, determine, in case of dispute, whether a school is necessary or not, and, in so determining, and also in deciding on any appeal as to the provision of a new school, shall have regard to the interest of secular instruction, to the wishes of parents as to the education of their children, and to the economy of the rates; but a school for the time being recognised as a public elementary school shall not be considered unnecessary in which the number of scholars in average attendance, as computed by the Board of Education, is not less than 30.

Aid Grant.

10.—(1) In lieu of the grants under the Voluntary Schools Act, 1897, and under Section 97 of the Elementary Education Act, 1870, as amended by the Elementary Education Act, 1897, there shall be annually paid to every local education authority, out of moneys provided by Parliament—

(a) a sum equal to four shillings per scholar; and

(b) an additional sum of three halfpence per scholar for every complete twopence per scholar by which the amount which would be

produced by a penny rate on the area of the authority falls short of ten shillings a scholar: provided that, in estimating the produce of a penny rate in the area of a local education authority not being a county borough, the rate shall be calculated upon the county rate basis, which, in cases where part only of a parish is situated in the area of the local education authority, shall be apportioned in such manner as the Board of Education think just.

But if in any year the total amount of parliamentary grants payable to a local education authority would make the amount payable out of other sources by that authority on account of their expenses under this Part of this Act less than the amount which would be produced by a rate of threepence in the pound, the parliamentary grants shall be decreased, and the amount payable out of other sources shall be increased by a sum equal in each case to half the difference.

(2) For the purposes of this Section the number of scholars shall be taken to be the number of scholars in average attendance, as computed by the Board of Education, in public elementary schools maintained by the authority.

Foundation Managers.

11.—(1) The foundation managers of a school shall be managers appointed under the provisions of the trust deed of the school, but if it is shown to the satisfaction of the Board of Education that the provisions of the trust deed as to the appointment of managers are in any respect inconsistent with the provisions of this Act, or insufficient or inapplicable for the purpose, or that there is no such trust deed available, the Board of Education shall make an Order under this Section for the purpose of meeting the case.

(2) Any such Order may be made on the application of the existing owners, trustees, or managers of the school, made within a period of three months after the passing of this Act, and after that period on the application of the local education authority or any other person interested in the management of the school, and any such Order, where it modifies the trust deed, shall have effect as part of the trust deed, and where there is no trust deed shall have effect as if it were contained in a trust deed.

(3) Notice of any such application, together with a copy of the draft final Order proposed to be made thereon, shall be given by the Board of Education to the local education authority and the existing owners, trustees and managers, and any other persons who appear to the Board of Education to be interested, and the final Order shall not be made until six weeks after notice has been so given.

(4) In making an Order under this Section with regard to any school, the Board of Education shall have regard to the ownership of the school building, and to the principles on which the education given in the school has been conducted in the past.

(5) The Board of Education may, if they think that the circumstances of the case require it, make any interim Order on any application under this Section to have temporary effect until the final Order is made.

(6) The body of managers appointed under this Act for a public elementary school not provided by the local education authority shall be the managers of that school both for the purposes of the Elementary Education Acts, 1870 to 1900, and this Act, and, so far as respects the management of the school as a public elementary school, for the purpose of the trust deed.

(7) Where the receipt by a school, or the trustees or managers of a school, of any endowment or other benefit is, at the time of the passing of this Act, dependent on any qualification of the managers, the qualification of the foundation managers only shall, in case of question, be regarded.

(8) The Board of Education may, on the application of the managers of the school, the local education authority or any person appearing to them to be interested in the school, revoke, vary or amend any order made under this Section by an Order made in a similar manner; but before making any such Order the draft thereof shall, as soon as may be, be laid before each House of Parliament, and, if within 30 days, being days on which Parliament has sat, after the draft has been so laid before Parliament, either House resolves that the draft, or any part thereof, should not be proceeded with, no further proceedings shall be taken thereon, without prejudice to the making of any new draft Order.

Grouping of Schools under one Management.

12.—(1) The local education authority may group under one body of managers any public elementary schools provided by them, and may also, with the consent of the managers of the schools, group under one body of managers any such schools not so provided.

(2) The body of managers of grouped schools shall consist of such number and be appointed in such manner and proportion as, in the case of schools provided by the local education authority, may be determined by that authority, and in the case of schools not so provided, may be agreed upon between the bodies of managers of the schools concerned and the local education authority, or in default of agreement may be determined by the Board of Education.

(3) Where the local education authority are the Council of a county, they shall make provision for the due representation of minor local authorities on the bodies of managers of schools grouped under their direction.

(4) Any arrangement for grouping schools not provided by the local education authority shall, unless previously determined by consent of the parties concerned, remain in force for a period of three years.

Endowments.

18.—(1) Nothing in this Act shall affect any endowment, or the discretion of any Trustees in respect thereof: provided that, where under the trusts or other provisions affecting any endowment the income thereof must be applied in whole or in part for those purposes of a public elementary school for which provision is to be made by the local education authority, the whole of the income or the part thereof, as the

case may be, shall be paid to that authority, and, in case part only of such income must be so applied and there is no provision under the said trusts or provisions for determining the amount which represents that part, that amount shall be determined, in case of difference between the parties concerned, by the Board of Education; but if a public inquiry is demanded by the local education authority, the decision of the Board of Education shall not be given until after such an inquiry, of which ten days' previous notice shall be given to the local education authority and to the minor local authority and to the Trustees, shall have been first held by the Board of Education at the cost of the local education authority.

(2) Any money arising from an endowment, and paid to a County Council for those purposes of a public elementary school for which provision is to be made by the Council, shall be credited by the Council in aid of the rate levied for the purposes of this Part of this Act in the parish or parishes which in the opinion of the Council are served by the school for the purposes of which the sum is paid, or, if the Council so direct, shall be paid by the Overseers of the parish or parishes in the proportions directed by the Council, and applied by the Overseers in aid of the poor rate levied in the parish.

Apportionment of School Fees.

14.—Where before the passing of this Act fees have been charged in any public elementary school not provided by the local education authority, that authority shall, while they continue to allow fees to be charged in respect of that school, pay such proportion of those fees as may be agreed upon, or, in default of agreement, determined by the Board of Education, to the managers.

Schools attached to Institutions.

15.—The local education authority may maintain as a public elementary school under the provisions of this Act, but shall not be required so to maintain, any marine school, or any school which is part of, or is held in the premises of, any institution in which children are boarded, but their refusal to maintain such a school shall not render the school incapable of receiving a parliamentary grant, nor shall the school, if not so maintained, be subject to the provisions of this Act as to the appointment of managers, or as to control by the local education authority.

Power to enforce duties under Elementary Education Acts.

16.—If the local education authority fail to fulfil any of their duties under the Elementary Education Acts, 1870 to 1900, or this Act, or fail to provide such additional public school accommodation within the meaning of the Elementary Education Act, 1870, as is, in the opinion of the Board of Education, necessary in any part of their area, the Board of Education may, after holding a public inquiry, make such Order as they think necessary or proper for the purpose of compelling the authority to fulfil their duty, and any such Order may be enforced by mandamus.

PART IV.**GENERAL.****Education Committees.**

17.—(1) Any Council having powers under this Act shall establish an Education Committee or Education Committees, constituted in accordance with a scheme made by the Council and approved by the Board of Education: provided that if a Council having powers under Part II. only of this Act determine that an Education Committee is unnecessary in their case, it shall not be obligatory on them to establish such a Committee.

(2) All matters relating to the exercise by the Council of their powers under this Act, except the power of raising a rate or borrowing money, shall stand referred to the Education Committee, and the Council, before exercising any such powers, shall, unless in their opinion the matter is urgent, receive and consider the report of the Education Committee with respect to the matter in question: the Council may also delegate to the Education Committee, with or without any restrictions or conditions as they think fit, any of their powers under this Act, except the power of raising a rate or borrowing money.

(3) Every such scheme shall provide—

(a) for the appointment by the Council of at least a majority of the Committee, and the persons so appointed shall be persons who are members of the Council, unless, in the case of a county, the Council shall otherwise determine;

(b) for the appointment by the Council, on the nomination or recommendation, where it appears desirable, of other bodies (including Associations of Voluntary Schools) of persons of experience in education, and of persons acquainted with the needs of the various kinds of schools in the area for which the Council acts;

(c) for the inclusion of women as well as men among the members of the Committee;

(d) for the appointment, if desirable, of members of School Boards existing at the time of the passing of this Act as members of the first Committee.

(4) Any person shall be disqualified for being a member of an Education Committee who, by reason of holding an office or place of profit, or having any share or interest in a contract or employment, is disqualified for being a member of the Council appointing the Education Committee, but no such disqualification shall apply to a person by reason only of his holding office in a school or college aided, provided or maintained by the Council.

(5) Any such scheme may, for all or any purposes of this Act, provide for the constitution of a separate Education Committee for any area within a county, or for a Joint Education Committee for any area formed by a combination of counties, boroughs or urban districts, or of parts thereof. In the case of any such Joint Committee, it shall suffice that a majority of the members are appointed by the Councils of any of the counties, boroughs or districts out of which or parts of which the area is formed.

(6) Before approving a scheme, the Board of Education shall take such measures as may appear expedient for the purpose of giving publicity to the provisions of the proposed scheme, and, before approving any scheme which provides for the appointment of more than one Education Committee, shall satisfy themselves that due regard is paid to the importance of the general co-ordination of all forms of education.

(7) If a scheme under this Section has not been made by a Council and approved by the Board of Education within twelve months after the passing of this Act, that Board may, subject to the provisions of this Act, make a provisional Order for the purposes for which a scheme might have been made.

(8) Any scheme for establishing an Education Committee of the Council of any county or county borough in Wales or of the county of Monmouth or county borough of Newport shall provide that the County Governing Body constituted under the Welsh Intermediate Education Act, 1889, for any such county or county borough shall cease to exist, and shall make such provision as appears necessary or expedient for the transfer of the powers, duties, property, and liabilities of any such Body to the local education authority under this Act, and for making the provisions of this section applicable to the exercise by the local education authority of the powers so transferred.

Expenses.

18.—(1) The expenses of a Council under this Act shall, so far as not otherwise provided for, be paid, in the case of a Council of a county out of the county fund, and in the case of the Council of a borough out of the borough fund or rate, or, if no borough rate is levied, out of a separate rate to be made, assessed, and levied in like manner as the borough rate, and in the case of the Council of an urban district other than a borough in manner provided by Section 33 of the Elementary Education Act, 1876, as respects the expenses mentioned in that Section: provided that—

(a) the County Council may, if they think fit (after giving reasonable notice to the Overseers of the parish or parishes concerned), charge any expenses incurred by them under this Act with respect to education other than elementary on any parish or parishes which, in the opinion of the Council, are served by the school or college in connexion with which the expenses have been incurred; and

(b) The County Council shall not raise any sum on account of their expenses under Part III. of this Act within any borough or urban district the Council of which is the local education authority for the purposes of that Part; and

(c) The County Council shall charge such portion as they think fit, not being less than one-half or more than three-fourths, of any expenses incurred by them in respect of capital expenditure or rent on account of the provision or improvement of any public elementary school on the parish or parishes which, in the opinion of the Council, are served by the school; and

(d) The County Council shall raise such portion as they think fit, not being less than one-half or more than three-fourths, of any expenses

incurred to meet the liabilities on account of loans or rent of any School Board transferred to them, exclusively within the area which formed the school district in respect of which the liability was incurred, so far as it is within their area.

(2) All receipts in respect of any school maintained by a local education authority, including any parliamentary grant, but excluding sums specially applicable for purposes for which provision is to be made by the managers, shall be paid to that authority.

(3) Separate accounts shall be kept by the Council of a borough of their receipts and expenditure under this Act, and those accounts shall be made up and audited in like manner and subject to the same provisions as the accounts of a County Council, and the enactments relating to the audit of those accounts and to all matters incidental thereto and consequential thereon, including the penal provisions, shall apply in lieu of the provisions of the Municipal Corporations Act, 1882, relating to accounts and audit.

(4) Where under any local Act the expenses incurred in any borough for the purposes of the Elementary Education Acts, 1870 to 1900, are payable out of some fund or rate other than the borough fund or rate, the expenses of the Council of that borough under this Act shall be payable out of that fund or rate instead of out of the borough fund or rate.

(5) Where any receipts or payments of money under this Act are entrusted by the local education authority to any education Committee established under this Act, or to the managers of any public elementary school, the accounts of those receipts and payments shall be accounts of the local education authority, but the auditor of those accounts shall have the same powers with respect to managers as he would have if the managers were officers of the local education authority.

Borrowing.

19.—(1) A Council may borrow for the purposes of the Elementary Education Acts, 1870 to 1900, or this Act, in the case of a County Council as for the purposes of the Local Government Act, 1888, and in the case of the Council of a county borough, borough or urban district as for the purposes of the Public Health Acts, but the money borrowed by a County Borough, Borough or Urban District Council shall be borrowed on the security of the fund or rate out of which the expenses of the Council under this Act are payable.

(2) Money borrowed under this Act shall not be reckoned as part of the total debt of a county for the purposes of Section 69 of the Local Government Act, 1888, or as part of the debt of a county borough, borough or urban district for the purpose of the limitation on borrowing under sub-sections two and three of Section 234 of the Public Health Act, 1875.

Arrangements between Councils.

20.—An authority having powers under this Act—

(a) may make arrangements with the Council of any county, borough, district or parish, whether a local education authority or not, for the

exercise by the Council, on such terms and subject to such conditions as may be agreed on, of any powers of the authority in respect of the management of any school or college within the area of the Council ; and (b) if the authority is the Council of a non-county borough or urban district may, at any time after the passing of this Act, by agreement with the Council of the county, and with the approval of the Board of Education, relinquish in favour of the Council of the county any of their powers and duties under this Act, and in that case the powers and duties of the authority so relinquished shall cease, and the area of the authority, if the powers and duties relinquished include powers as to elementary education, shall, as respects those powers, be part of the area of the County Council.

Provisional Orders and Schemes.

21.—(1) Sections 297 and 298 of the Public Health Act, 1875 (which relate to Provisional Orders), shall apply to any Provisional Order made under this Act as if it were made under that Act, but references to a local authority shall be construed as references to the authority to whom the Order relates, and references to the Local Government Board shall be construed as references to the Board of Education.

(2) Any scheme or Provisional Order under this Act may contain such incidental or consequential provisions as may appear necessary or expedient.

(3) A scheme under this Act when approved shall have effect as if enacted in this Act, and any such scheme, or any Provisional Order made for the purposes of such a scheme, may be revoked or altered by a scheme made in like manner and having the same effect as an original scheme.

Provision as to Elementary and Higher Education Powers respectively.

22.—(1) In this Act and in the Elementary Education Acts the expression “ elementary school ” shall not include any school carried on as an evening school under the regulations of the Board of Education.

(2) The power to provide instruction under the Elementary Education Acts, 1870 to 1900, shall, except where those Acts expressly provide to the contrary, be limited to the provision in a public elementary school of instruction given under the regulations of the Board of Education to scholars who, at the close of the school year, will not be more than 16 years of age : provided that the local education authority may, with the consent of the Board of Education, extend those limits in the case of any such school if no suitable higher education is available within a reasonable distance of the school.

(3) The power to supply or aid the supply of education other than elementary includes a power to train teachers, and to supply or aid the supply of any education except where that education is given at a public elementary school.

Miscellaneous Provisions.

23.—(1) The powers of a Council under this Act shall include the provision of vehicles or the payment of reasonable travelling expenses for teachers or children attending school or college whenever the Council shall consider such provision or payment required by the circumstances of their area or of any part thereof.

(2) The power of a Council to supply or aid the supply of education, other than elementary, shall include power to make provision for the purpose outside their area in cases where they consider it expedient to do so in the interests of their area, and shall include power to provide or assist in providing scholarships for, and to pay or assist in paying the fees of, students ordinarily resident in the area of the Council at schools or colleges or hostels within or without that area.

(3) The County Councillors elected for an electoral division consisting wholly of a borough or urban district whose Council are a local education authority for the purpose of Part III. of this Act, or of some part of such a borough or district, shall not vote in respect of any question arising before the County Council which relates only to matters under Part III. of this Act.

(4) The amount which would be produced by any rate in the pound shall be estimated for the purposes of this Act in accordance with regulations made by the Local Government Board.

(5) The Mortmain and Charitable Uses Act, 1888, and so much of the Mortmain and Charitable Uses Act, 1891, as requires that land assured by Will shall be sold within one year from the death of the testator, shall not apply to any assurance, within the meaning of the said Act of 1888, of land for the purpose of a school house for an elementary school.

(6) A woman is not disqualified, either by sex or marriage, for being on any body of managers or Education Committee under this Act.

(7) Teachers in a school maintained but not provided by the local education authority shall be in the same position as respects disqualification for office as members of the authority as teachers in a school provided by the authority.

(8) Population for the purposes of this Act shall be calculated according to the census of 1901.

(9) Sub-sections 1 and 5 of Section 87 of the Local Government Act, 1888 (which relate to local inquiries), shall apply with respect to any Order, consent, sanction, or approval which the Local Government Board are authorised to make or give under this Act.

(10) The Board of Education may, if they think fit, hold a public inquiry for the purpose of the exercise of any of their powers or the performance of any of their duties under this Act, and Section 73 of the Elementary Education Act, 1870, shall apply to any public inquiry so held or held under any other provision of this Act.

Interpretation.

24.—(1) Unless the context otherwise requires, any expression to which a special meaning is attached in the Elementary Education Acts, 1870 to 1900, shall have the same meaning in this Act.

(2) In this Act the expression "minor local authority" means, as respects any school, the Council of any borough or urban district, or the Parish Council or (where there is no Parish Council) the parish meeting of any parish which appears to the County Council to be served by the school. Where the school appears to the County Council to serve the area of more than one minor local authority the County Council shall make such provision as they think proper for joint appointment of managers by the authorities concerned.

(3) In this Act the expressions "powers," "duties," "property" and "liabilities" shall, unless the context otherwise requires, have the same meanings as in the Local Government Act, 1888.

(4) In this Act the expression "college" includes any educational institution, whether residential or not.

(5) In this Act, unless the context otherwise requires, the expression "trust deed" includes any instrument regulating the trusts or management of a school or college.

Provisions as to Proceedings, Transfer, etc., Application of Enactments and Repeal.

25.—(1) The provisions set out in the First and Second Schedules to this Act relating to Education Committees and managers, and to the transfer of property and officers, and adjustment, shall have effect for the purpose of carrying the provisions of this Act into effect.

(2) In the application of the Elementary Education Acts, 1870 to 1900, and other provisions referred to in that Schedule, the modifications specified in the Third Schedule to this Act shall have effect.

(3) The enactments mentioned in the Fourth Schedule to this Act shall be repealed to the extent specified in the third column of that Schedule.

Application of Act to Scilly Islands.

26.—(1) For the purposes of this Act the Council of the Isles of Scilly shall be the local education authority for the Scilly Islands, and the expenses of the Council under this Act shall be general expenses of the Council.

Extent, Commencement and Short Title.

27.—(1) This Act shall not extend to Scotland or Ireland, or, except, as expressly provided, to London.

(2) This Act shall, except as expressly provided, come into operation on the appointed day, and the appointed day shall be the 26th day of March, 1903, or such other day, not being more than 18 months later, as the Board of Education may appoint, and different days may be appointed for different purposes and for different provisions of this Act, and for different Councils.

(3) The period during which local authorities may, under the Education Act, 1901, as renewed by the Education Act, 1901 (Renewal) Act, 1902, empower School Boards to carry on the work of the schools and classes

to which those Acts relate shall be extended to the appointed day, and in the case of London to the 26th day of March, 1904.

(4) This Act may be cited as the Education Act, 1902, and the Elementary Education Acts, 1870 to 1900, and this Act may be cited as the Education Acts, 1870 to 1902.

SCHEDULES.

FIRST SCHEDULE.

Provision as to Education Committees and Managers.

A.—Education Committees.

(1) The Council by whom an Education Committee is established may make regulations as to the quorum, proceedings and place of meeting of that Committee, but, subject to any such regulations, the quorum, proceedings and place of meeting of the Committee shall be such as the Committee determine.

(2) The chairman of the Education Committee at any meeting of the Committee shall, in case of an equal division of votes, have a second or casting vote.

(3) The proceedings of an Education Committee shall not be invalidated by any vacancy among its members or by any defect in the election, appointment or qualification of any members thereof.

(4) Minutes of the proceedings of an Education Committee shall be kept in a book provided for that purpose, and a minute of those proceedings, signed at the same or next ensuing meeting by a person describing himself as or appearing to be, chairman of the meeting of the Committee at which the minute is signed, shall be received in evidence without further proof.

(5) Until the contrary is proved, an Education Committee shall be deemed to have been duly constituted and to have power to deal with any matters referred to in its minutes.

(6) An Education Committee may, subject to any directions of the Council, appoint such and so many sub-committees, consisting either wholly or partly of members of the Committee, as the Committee thinks fit.

B.—Managers.

(1) A body of managers may choose their chairman, except in cases where there is an *ex-officio* chairman, and regulate their quorum and proceedings in such manner as they think fit, subject, in the case of the managers of a school provided by the local education authority, to any directions of that authority: provided that the quorum shall not be less than three, or one-third of the whole number of managers, whichever is the greater.

(2) Every question at a meeting of a body of managers shall be determined by a majority of the votes of the managers present and voting on the question, and in case of an equal division of votes the chairman of the meeting shall have a second or casting vote.

(3) The proceedings of a body of managers shall not be invalidated by any vacancy in their number, or by any defect in the election, appointment or qualification of any manager.

(4) The body of managers of a school provided by the local education authority shall deal with such matters relating to the management of the school, and subject to such conditions and restrictions, as the local education authority determine.

(5) A manager of a school not provided by the local education authority, appointed by that authority or by the minor local authority, shall be removable by the authority by whom he is appointed, and any such manager may resign his office.

(6) The body of managers shall hold a meeting at least once in every three months.

(7) Any two managers may convene a meeting of the body of managers.

(8) The minutes of the proceedings of every body of managers shall be kept in a book provided for that purpose.

(9) A minute of the proceedings of a body of managers, signed at the same or the next ensuing meeting by a person describing himself as, or appearing to be, chairman of the meeting at which the minute is signed, shall be received in evidence without further proof.

(10) The minutes of a body of managers shall be open to inspection by the local education authority.

(11) Until the contrary is proved, a body of managers shall be deemed to be duly constituted and to have power to deal with the matters referred to in their minutes.

SECOND SCHEDULE.

Provisions as to Transfer of Property and Officers, and Adjustment.

(1) The property, powers, rights and liabilities (including any property powers, rights and liabilities vested, conferred or arising under any local Act or any Trust Deed) of any School Board or School Attendance Committee existing at the appointed day shall be transferred to the Council exercising the powers of the School Board.

(2) Where, under the provisions of this Act, any Council relinquishes its powers and duties in favour of a County Council, any property or rights acquired and any liabilities incurred, for the purpose of the performance of the powers and duties relinquished, including any property or rights vested or arising, or any liabilities incurred, under any local Act or Trust Deed, shall be transferred to the County Council.

(3) Any loans transferred to a Council under this Act shall, for the purpose of the limitation on the powers of the Council to borrow, be treated as money borrowed under this Act.

(4) Any liability of an Urban District Council incurred under the Technical Instruction Acts, 1889 and 1891, and charged on any fund or rate, shall, by virtue of this Act, become charged on the fund or rate out of which the expenses of the Council under this Act are payable, instead of on the first-mentioned fund or rate.

(5) Section two of this Act shall apply to any balance of the Residue under Section one of the Local Taxation (Customs and Excise) Act, 1890, remaining unexpended and unappropriated by any Council at the appointed day.

(6) Where the liabilities of a School Board transferred to the local education authority under this Act comprise a liability on account of money advanced by that authority to the School Board, the Local Government Board may make such Orders as they think fit for providing for the repayment of any debts incurred by the authority for the purposes of those advances within a period fixed by the Order, and, in case the money advanced to the School Board has been money standing to the credit of any sinking fund or redemption fund or

capital money applied under the Local Government Acts, 1888 and 1894, or either of them, for the repayment to the proper fund or account of the amount so advanced.

Any Order of the Local Government Board made under this provision shall have effect as if enacted in this Act.

(7) Where a District Council ceases by reason of this Act to be a school authority within the meaning of the Elementary Education (Blind and Deaf Children) Act, 1893, or the Elementary Education (Defective and Epileptic Children) Act, 1899, any property or rights acquired and any liabilities incurred under those Acts shall be transferred to the County Council, and, notwithstanding anything in this Act, the County Council may raise any expenses incurred by them to meet any liability of a school authority under those Acts (whether a District Council or not), and transferred to the County Council, off the whole of their area, or off any parish or parishes which in the opinion of the Council are served by the school in respect of which the liability has been incurred.

(8) Sections 85 to 88 of the Local Government Act, 1894 (which contain transitory provisions), shall apply with respect to any transfer mentioned in this Schedule, subject as follows:—

(a) References to "the appointed day" and to "the passing of this Act" shall be construed, as respects a case of relinquishment of powers and duties, as references to the date on which the relinquishment takes effect; and

(b) the powers and duties of a School Board or School Attendance Committee which is abolished, or a Council which ceases under the provisions of this Act to exercise powers and duties, shall be deemed to be powers and duties transferred under this Act; and

(c) sub-sections four and five of Section 85 shall not apply.

(9) The disqualification of any persons who are, at the time of the passing of this Act, members of any Council, and who will become disqualified for office in consequence of this Act, shall not, if the Council so resolve, take effect until a day fixed by the resolution, not being later than the next ordinary day of retirement of Councillors in the case of a County Council, the next ordinary day of election of Councillors in the case of the Council of a borough, and the 15th day of April in the year 1904 in the case of an Urban District Council.

(10) No election of members of a School Board shall be held after the passing of this Act, and the term of office of members of any School Board holding office at the passing of this Act, or appointed to fill casual vacancies after that date, shall continue to the appointed day, and the Board of Education may make Orders with respect to any matter which it appears to them necessary or expedient to deal with for the purpose of carrying this provision into effect, and any order so made shall operate as if enacted in this Act.

(11) Where required for the purpose of bringing the accounts of a school to a close before the end of the financial year of the school, or for the purpose of meeting any change consequent on this Act, the Board of Education may calculate any parliamentary grant in respect of any month or other period less than a year, and may pay any parliamentary grant which has accrued before the appointed day at such times and in such manner as they think fit.

(12) Any parliamentary grant payable to a public elementary school not provided by a School Board in respect of a period before the appointed day shall be paid to the persons who were managers of the school immediately before that day, and shall be applied by them in payment of the outstanding liabilities on account of the school, and so far as not required for that purpose shall be paid to the persons who are managers of the school for the purposes of this Act and shall be applied by them for the purposes for which provision is to be made under this

Act by those managers, or for the benefit of any general fund applicable for those purposes: provided that the Board of Education may, if they think fit, pay any share of the aid grant under the Voluntary Schools Act, 1897, allotted to an Association of Voluntary Schools, to the Governing Body of that Association, if such Governing Body satisfy the Board of Education that proper arrangements have been made for the application of any sum so paid.

(13) Any school which has been provided by a School Board or is deemed to have been so provided shall be treated for the purposes of the Elementary Education Acts, 1870 to 1900, and this Act, as a school which has been provided by the local education authority, or which is deemed to have been so provided, as the case may be.

(14) The local education authority shall be entitled to use for the purposes of the school any school furniture and apparatus belonging to the trustees or managers of any public elementary school not provided by a School Board, and in use for the purposes of the school before the appointed day.

(15) During the period between the passing of this Act and the appointed day, the managers of any public elementary school, whether provided by a School Board or not, and any School Attendance Committee, shall furnish to the Council, which will on the appointed day become the local education authority, such information as that Council may reasonably require.

(16) The officers of any authority whose property, rights and liabilities are transferred under this Act to any Council shall be transferred to and become the officers of that Council, but that Council may abolish the office of any such officer whose office they deem unnecessary.

(17) Every officer so transferred shall hold his office by the same tenure and on the same terms and conditions as before the transfer, and while performing the same duties shall receive not less salary or remuneration than theretofore, but if any such officer is required to perform duties which are not analogous to or which are an unreasonable addition to those which he is required to perform at the date of the transfer, he may relinquish his office, and any officer who so relinquishes his office, or whose office is abolished, shall be entitled to compensation under this Act.

(18) A Council may, if they think fit, take into account continuous service under any School Boards or School Attendance Committees in order to calculate the total period of service of any officer entitled to compensation under this Act.

(19) If an officer of any authority to which the Poor Law Officers' Superannuation Act, 1896, applies is under this Act transferred to any Council, and has made the annual contributions required to be made under that Act, the provisions of that Act shall apply, subject to such modifications as the Local Government Board may by Order direct for the purpose of making that Act applicable to the case.

(20) Any local education authority who have established any pension scheme, or scheme for the superannuation of their officers, may admit to the benefits of that scheme any officers transferred under this Act on such terms and conditions as they think fit.

(21) Section 120 of the Local Government Act, 1888, which relates to compensation to existing officers, shall apply as respects officers transferred under this Act, and also (with the necessary modifications) to any other officers who, by virtue of this Act or anything done in pursuance or in consequence of this Act, suffer direct pecuniary loss by abolition of office or by diminution or loss of fees or salary, in like manner as it applies to officers transferred under this Act, subject as follows:—

(a) any reference in that Section to the County Council shall include a reference to a Borough or Urban District Council; and

(b) references in that Section to "the passing of the Act" shall be construed, as respects a case of relinquishment of powers and duties, as references to the date on which the relinquishment takes effect; and

(c) any reference to powers transferred shall be construed as a reference to property transferred; and

(d) any expenses shall be paid out of the fund or rate out of which the expenses of a Council under this Act are paid, and, if any compensation is payable otherwise than by way of an annual sum, the payment of that compensation shall be a purpose for which a Council may borrow for the purposes of this Act.

(22) Section 68 of the Local Government Act, 1894 (which relates to the adjustment of property and liabilities), shall apply with respect to any adjustment required for the purposes of this Act.

THIRD SCHEDULE.

Modification of Acts, etc.

(1) References to School Boards and school districts shall be construed as references to local education authorities and the areas for which they act, except as respects transactions before the appointed day, and except that in paragraph (2) of Section 19 of the Elementary Education Act, 1876, and in sub-section (1) of Section two of the Education Code (1890) Act, 1890, references to a school district shall, as respects the area of a local education authority being the Council of a county, be construed as references to a parish.

(2) References to the school fund or local rate shall be construed as references to the fund or rate out of which the expenses of the local education authority are payable.

(3) In Section 38 of the Elementary Education Act, 1876, references to members of a School Board shall be construed as references to members of the Education Committee, or of any sub-committee appointed by that Committee for school attendance purposes.

(4) The power of making bye-laws shall (where the local education authority is a County Council) include a power of making different bye-laws for different parts of the area of the authority.

(5) The following provision shall have effect in lieu of Section five of the Elementary Education Act, 1891:

"The duty of a local education authority under the Education Acts, 1870 to 1902, to provide a sufficient amount of public school accommodation shall include the duty to provide a sufficient amount of public school accommodation without payment of fees in every part of their area."

(6) The words "in the opinion of the Board of Education" shall be substituted for the words "in their opinion" in the first paragraph of Section 18 of the Elementary Education Act, 1870.

(7) Section 99 of the Elementary Education Act, 1870, shall apply to the fulfilment of any conditions, the performance of any duties and the exercise of any powers under this Act as it applies to the fulfilment of conditions required in pursuance of that Act to be fulfilled in order to obtain a parliamentary grant.

(8) A reference to the provisions of this Act as to borrowing shall be substituted in Section 15 of the Elementary Education Act, 1876, for the reference to Section ten of the Elementary Education Act, 1873, and a reference to the Local

Government Board shall be substituted for the second reference in that Section to the Education Department, and also for the reference to the Education Department in Section five of the Elementary Education (Blind and Deaf Children) Act, 1893.

(9) A reference to the provisions of this Act relating to the enforcement of the performance of the local education authority's duties by mandamus shall be substituted in Section two of the Elementary Education Act, 1880, for the reference to Section 27 of the Elementary Education Act, 1876.

(10) The substitutions for School Boards, school districts, school fund and local rate made by this Schedule shall, unless the context otherwise requires, be made in any enactment referring to or applying the Elementary Education Acts, 1870 to 1900, or any of them, so far as the reference or application extends.

(11) References in any enactment or in any provision of a scheme made under the Charitable Trusts Acts, 1853 to 1894, or the Endowed Schools Acts, 1869 to 1889, or the Elementary Education Acts, 1870 to 1900, to any provisions of the Technical Instruction Acts, 1889 and 1891, or either of those Acts shall, unless the context otherwise requires, be construed as references to the provisions of Part II. of this Act, and the provisions of this Act shall apply with respect to any school, college or hostel established, and to any obligation incurred, under the Technical Instruction Acts, 1889 and 1891, as if the school, college or hostel had been established or the obligation incurred under Part II. of this Act.

(12) The Local Government Board may, after consultation with the Board of Education, by Order make such adaptations in the provisions of any local Act (including any Act to confirm a Provisional Order and any scheme under the Municipal Corporations Act, 1882, as amended by any subsequent Act) as may seem to them to be necessary to make those provisions conform with the provisions of this Act, and may also in like manner, on the application of any Council who have power as to education under this Act and have also powers as to education under any local Act, make such modifications in the local Act as will enable the powers under that Act to be exercised as if they were powers under this Act.

Any Order made under this provision shall operate as if enacted in this Act.

FOURTH SCHEDULE.

Enactments Repealed.

Part I.

Session and Chapter.	Short Title.	Extent of Repeal.
52 and 53 Vict. c. 76..	The Technical Instruction Act, 1889.	The whole Act.
53 and 54 Vict. c. 60..	The Local Taxation (Customs and Excise) Act, 1890.	In Section one, sub-sections two and three.
54 and 55 Vict. c. 4 ..	The Technical Instruction Act, 1891.	The whole Act.

Part II.

Session and Chapter.	Short Title.	Extent of Repeal.
33 and 34 Vict. c. 75..	The Elementary Education Act, 1870.	Section four; Section five except so far as it defines public school accommodation; Section six; Sections

Session and Chapter.	Short Title.	Extent of Repeal.
		eight to 13; Sections 15 and 16; Section 18 from "If at any time" to the end of the Section; in Section 19 the words "whether in obedience to any requisition or not"; Sections 29 to 34; in Section 35 the words "a clerk and a treasurer and other" and the words from "but no such appointment" to "member of the Board"; Sections 40 to 48; Sections 49 to 51; in Section 52 the words "under the provisions of this Act with respect to the appointment of a body of managers"; Sections 53 to 56; Sections 60 to 66; in Section 69 the words "in the metropolis" and the words from "appointed under this Act" to "returns under this Act"; in Section 73 the words "of the school district" the words from "(if any) or if" to "inquiry relates," and the words "or if there is no School Board as a debt due from the rating authority"; Sections 77 and 79; Sections 87, 88 and 90; Section 93; the first proviso of Section 97; the First Schedule; the Second Schedule, except the Third Part; the Third Schedule.
36 and 37 Vict. c. 86..	The Elementary Education Act, 1873.	Sections five to twelve; Sections 17 and 18; Sections 21 and 26; the First Schedule, the Second Schedule, the Third Schedule.
37 and 38 Vict. c. 90..	The Elementary Education (Orders) Act, 1874.	The whole Act.
39 and 40 Vict. c. 79..	The Elementary Education Act, 1876.	Section seven, from "and (2) in every" to "appointing the Committee," and the words "and School Attendance Committee": in Section 15 the words "not

Session and Chapter.	Short Title.	Extent of Repeal.
		exceeding 50"; Section 21; Section 23 to "or pay any fees"; Section 27; in Section 28 the words "but subject in the case of a School Attendance Committee to the approval hereinafter mentioned" and the words "or the officers of the Council or Guardians by whom the Committee are appointed"; Sections 30, 31, 32, 33 (except as applied by this Act) and 34; Section 36; in Section 37 the words "or local authority"; in Section 38 the words "or local authority" and "or School Attendance Committee"; Sections 41, 42, 43 and 44; Section 49; the Second Schedule; the Third Schedule.
43 and 44 Vict. c. 23..	The Elementary Education Act, 1880.	Section three.
53 and 54 Vict. c. 22..	The Education Code (1890) Act, 1890.	Section one.
54 and 55 Vict. c. 56..	The Elementary Education Act, 1891.	Sections five, six and seven.
56 and 57 Vict. c. 42..	The Elementary Education (Blind and Deaf Children) Act, 1893.	Section four from "(b) for an area" to the end of the Section; sub-sections (3) and (4) of Section five; Section six.
59 and 60 Vict. c. 16..	The Agricultural Rates Act, 1896.	In Section seven the words "a School Board for a school district which is a parish or," and sub-section (3).
60 and 61 Vict. c. 5 ..	The Voluntary Schools Act, 1897.	Section one.
60 and 61 Vict. c. 16..	The Elementary Education Act, 1897.	The whole Act.
62 and 63 Vict. c. 32..	The Elementary Education (Defective and Epileptic Children) Act, 1899.	In Section six the proviso.
63 and 64 Vict. c. 53..	The Elementary Education Act, 1900.	Section three.

III.—THE TEACHING OF HOUSEHOLD ECONOMY IN THE UNITED STATES.

MISS RAVENHILL'S VISIT OF INQUIRY.*

BY MRS. PILLOW, A.S.I.

General Outline of Aim and Procedure.

The report drawn up by Miss Ravenhill for the West Riding Technical Instruction Committee upon the educational work connected with domestic science as carried on in the United States has just come to hand. Miss Ravenhill went forth upon her mission charged with the three-fold responsibility of conducting inquiries and preparing reports as above for (1) the Board of Education, (2) the Sanitary Institute, and (3) the Technical Instruction Committee of the West Riding County Council.

In deciding upon the most advisable line of action which would lead to gaining a real grasp of the position held by the domestic sciences in the educational curricula of the various States, the facilities provided for teaching and the general acceptance and results of the work, Miss Ravenhill decided to visit as large a number of institutions as possible, spread over a wide area of country, rather than to confine herself to a detailed study of the work in a much smaller number of cities. Taking into consideration certain points mentioned in the preface, and the results of the inquiry as embodied in the report, the wisdom of this line of action is apparent. These points are (1) "the absence of centralisation," (2) "the local and individual independence characteristic of the American educational system" and (3) "the active spirit of experimental progress which distinguishes the nation."

Miss Ravenhill quickly recognised the elasticity of the work upon which she had started to make inquiry. Guided by the advice of various educationalists in the United States, the itinerary included in its scheme New York City, Philadelphia, Washington, Boston, Cleveland (Ohio), Chicago, Toledo, Detroit and Buffalo.

* West Riding County Council: Report to the Technical Instruction Committee by Miss Alice Ravenhill, being the result of a visit of inquiry to the United States as to the educational work there carried on in Hygiene, Domestic Economy and Household Management and kindred subjects (Wakefield: W. H. Milnes).



THE HOME AND DAY HIGH SCHOOL, DETROIT, MICH., U.S.A. (COOKERY ROOM). (See page 92.)

Educational Centres and their Work.

The following institutions were among those visited:—

- The Pratt Institute, Brooklyn, New York.
- The Drexel Institute, Philadelphia.
- The Lewis Institute, Chicago.
- The Armour Institute, Chicago.
- The Massachusetts Institute of Technology, Boston.
- The State Agricultural College, Columbus, Ohio.
- The State Agricultural College, Urbana, Illinois.
- The Michigan State University, Ann Arbor.
- The University of Columbia, New York City.
- The University of Chicago.
- The State Normal School, Framingham, Massachusetts.
- The State Normal School, Salem, Massachusetts.
- The Manual Training High School, Providence, R.I.
- The Manual Training High School, Toledo.
- The High School, Brookline, Massachusetts.
- The Central High School, Detroit.

Miss Ravenhill speaks in terms of the highest praise of the completeness of the courses in the domestic sciences and arts and in hygiene initiated by each of these institutions, their high standard and their success. "Each serves as a model for the introduction elsewhere of similar courses . . . each carries on its work under a staff of efficient and highly-qualified teachers," who are selected, as Miss Ravenhill very definitely points out, "for their clear perceptions of present educational needs and possibilities" and for their capability "of framing programmes to meet them."

In our own country, especially in connection with the subjects under the title of domestic economy or domestic science, it has been, until recent years, no uncommon thing to find teachers with the barest qualifications entrusted with classes, in which the teaching given has been most fragmentary and unintellectual. The power of training the eyes to see and the faculties to think and to reason and to form correct judgments upon the problems necessary to be solved in order to maintain the health, the comfort and the general economic management of the home, are beginning to be recognised as being as important factors in the equipment of domestic economy teachers as their actual manual training and dexterity in the kitchen, the laundry, the workroom, etc.

In the United States the teaching of hygiene "is compulsorily included in the time-table of every primary and grammar school. Elasticity, as Miss Ravenhill strongly emphasises, is the keynote of the educational system of the States, but this subject "constitutes

the one exception," it being "a legal enactment," binding almost everywhere, "that elementary hygiene and physiology be taught in every grade of every public elementary school for a specified time in each school year." As co-education is general, "boys share with girls the advantage of these studies."

Miss Ravenhill, in dealing with the educational methods adopted in these, as in other, subjects, mentions two facts which must be realised and borne in mind in order that the *raison d'être* of these methods may be fully grasped.

"(1) The national determination to place the United States in the forefront of the world, and, as a means to secure the fulfilment of this resolve, to develop a population possessing the indispensable physique and essential intellectual development.

"(2) The vigour and youthful energy characteristic of this people which cannot rest until precept is tested by practice. Experimental efforts are favoured by the prevalent elasticity of organisation, habitual open-mindedness and extent of opportunity, which all contribute to the noticeable forbearance exhibited towards tentative endeavours, and especially towards those undertaken in the educational world."

Viewed in the light of the determination to develop a sound and intelligent people, it is not difficult to understand the great prominence given to the teaching of hygiene, physiology and the allied sciences. "A large proportion of high schools" in the States include these subjects in their curricula, "and their study (for both sexes) is connected with the obligatory physical culture courses of the State agricultural colleges and technical institutes; they occupy a place in the curricula of normal colleges, and they enter into the courses included in the departments of sociology and pedagogy in the leading universities." Miss Ravenhill in her report shows how the study of sociology and of civics "is directly affecting the demand for college courses in hygiene and physiology," and where sanitary science courses are not available male students will even enter for the household science courses in technical institutes, etc., in order to gain desired information.

Methods of Teaching and of Training Teachers.

HYGIENE AND PHYSIOLOGY.—The methods of teaching hygiene and physiology are briefly described in the report :—

(1) *In Grade or Elementary Schools* the teaching ". . . may be described as 'objective'; the children are encouraged to gain as

much information as they can from observing their own bodies and environment, or from simple experiments, these observations being discussed conversationally in 'recitations.' Charts and models are commonly supplied, and in many schools visited the teachers are in the habit of bringing fresh bones and organs (such as the hearts, eyes, kidneys, etc., of an ox or sheep) to use for demonstration purposes. Considerable trouble is evidently taken to learn to what extent habits are influenced by these lessons. Under many Boards of Education efforts are successfully made to interrelate these subjects with the 'nature-study,' language talks, number work, cooking, geography, history and civics taught in the different grades; the home is taken as a central fact, and the other subjects are treated in their relation to the needs of family and social life."

(2) *In High Schools and Colleges* "the subject of physiology is almost invariably taught practically in the well-equipped biological laboratories found in all recent buildings, and hygienic applications are made of the information gained by this means; also, in an increasing number of cases, similar applications are made of the principles learned by theory and practice in the chemical and physical laboratories. The practical, as distinct from the theoretical, study of house sanitation is still in its infancy, though, the universal custom of 'exposed' plumbing facilitates observations hard to make in England owing to the cased-in, 'concealed' pipes; while the growing faith in 'field work' leads to the inclusion in these courses of visits to houses in course of construction, to markets, shops, sewage works, etc."

(3) *In Normal Colleges*, "the study of hygiene and physiology is habitually included in the two branches of study (pedagogy and child study, and physical culture) required of all students preparing themselves for the teaching profession, and is occasionally included in their course in practical biology, for which a knowledge of elementary chemistry and physics are pre-requisites. One or other of these courses runs throughout the whole period of training, that is, two or four years."

(4) *In Technical Institutes* the teaching of hygiene "is usually included in the household science course: but at the Pratt Institute, the Brooklyn Technical Institute, and doubtless in other instances, special short courses for adults on public hygiene are provided (care of streets, sewers and water supply, precautions against spread of diseases—disinfection, laws on food protection, school hygiene, etc.), or on some branch of the subject, e.g., child hygiene, food and dietetics, etc. These are given during the afternoon or evening according to the greatest demand."

(5) *Outside Agencies*, such as farmers' institutes, women's clubs, parents' unions and associations for the encouragement of university extension lectures, are at work in the same direction, lectures bearing upon hygiene and the present welfare of the people being included in their educational programmes.

DOMESTIC SCIENCE.—This “very usually comprehends in its definition and practice a greater or less amount of hygiene. It may be found in some schools limited in its treatment to the purely utilitarian teaching of cooking and sewing, or it may be observed in other educational institutions extended so as to embrace the scope attributed to it by broader minds, who define it as ‘consisting of certain household arts or activities based on a number of sciences, and leading to the study of economics’; hence its prevalent title of ‘household economics.’ By a variety of methods the subject is now being introduced into an increasing number of schools, in a growing number of cities; the efficiency of some of these methods is still a slightly uncertain quantity under certain Boards of Education, but an encouraging elevation of general standard in the grade schools is perceptible to interested observers. Very admirable courses exist in many high schools and technical institutes, and in a majority of the State agricultural colleges, based on sound scientific and economic lines; these lead, in the case of the colleges, to the degree of Bachelor of Science, in the technical institutes, to a diploma.”

TRAINING OF TEACHERS.—The fact that only specially qualified teachers are employed in teaching these utilitarian subjects renders it imperative that special arrangements should be made for their training, and, Miss Ravenhill reports, that to meet this “exhaustive training courses are offered in both hygiene and the domestic sciences and arts, in a few Universities (notably Columbia University, New York City and the University of Chicago), at some of the most prominent technical institutes and at most of the State agricultural colleges. The former subject is included in the curricula of the greater number of the State normal schools; the latter at present only in the case of a limited number; normal students usually take one or other branch of household economics as post-graduate work. The finest post-graduate courses in either branch are offered at Teachers' College, Columbia University, and at the Pratt and Drexel Institutes at Brooklyn (New York) and Philadelphia.”

LENGTH OF SCHOOL AND TRAINING COURSES.—“The full courses of study in the domestic sciences, or the domestic arts in colleges and technical institutes, extend respectively (with rare exceptions) over two or three years, whether planned for

normal students or for the general public, and demand the individual's entire time, nine to twelve hours a day. No generalisation is trustworthy as to the length of high school courses"; for domestic science "the diversity of practice is so great. Girls may devote two hours a week for four years to these subjects, or four hours a week for two years, or six or eight hours a week for one year."

SCOPE OF VARIOUS COURSES.—The scope of the courses in all the colleges, technical institutes and high schools is the same, being based upon the motives already referred to on p. 82. The courses on household economics, the writer states, "aim to arouse thought, to develop the reflective powers, to engender resourcefulness and to promote efficiency in those responsible for the making of homes and for the well-being of their occupants. The syllabuses include a greater range "of subjects than is usual in this country, for the reason that if household economics be recognised as consisting 'of certain household arts or activities, based on a number of sciences and leading to the study of economics,' the future housekeeper must first gain an intelligent insight into these underlying sciences, then proceed to apply them in the arts which find a place in family life, and finally familiarise herself with the principles of economics, so that her practice may be guided by the light of reason and experience."

The sciences which are required to be taken in connection with household economics "are (1) general chemistry, specialised later on household matters (food, cleaning, etc.), (2) physics and (3) biology, which includes a working acquaintance with sanitary bacteriology (bacteria in the air, water, soils, moulds, yeasts). At least two years are devoted to these subjects, longer if no previous training has been available. To facilitate the skilful "manipulations required of cook or needlewoman, (4) manual training in wood and iron work and (5) freehand drawing and brush work and design, are included; usually (6) a course of 'nature-study' develops the powers of observation and impresses the inevitable sequence of Nature's laws; (7) the study of form and colour trains the eye; (8) literature and (9) foreign languages are recommended to preserve just mental 'poise' and to promote general culture; while (10) stress is laid on regular physical culture to maintain health, develop vigour and ensure a good carriage, points to which much attention is paid in the selection of teachers." And here Miss Ravenhill states that "with all this intelligent fundamental study as a basis for household practice, the student can dispense with three-fourths of the time spent in actual cooking, laundry, or

needle-practice, under a system which aims only at immediate utility within certain narrow bounds."

For the purposes of training the mind on the lines stated by Miss Ravenhill as forming the motive power throughout the educational system in the States, no doubt this is correct; but for the actual expertness and dexterity of work required of cook, laundry worker or needle-woman, much practice is required, and not unfrequently have we heard the complaint in our own country that an excellent theorist is not always a good practical worker!

RESULTS.—The results of the methods "as at present observed in the States are":—

"(1) A high class of woman avails herself of these training courses, finding they give full scope to her intellectual abilities, increase her sense of the dignity of domestic work, and fit her for the performance of its duties with much saving of physical labour, much addition of pleasure and profit and a considerable elimination of the element of chance."

"(2) Principals of high schools approve of the introduction into their own schools of such a course, suitably modified, observing that it permits of the desirable concrete applications for scientific and economic theories, that it constitutes a valuable link between home and school life, and that it supports and favours that conception of education first promulgated by Professor John Dewey, of Chicago, and now winning its way into general acceptance, that 'each one of our schools must exemplify an embryonic community life, active with types of occupations that reflect the life of the larger society, and permeated throughout with the spirit of art, history and science,' an obvious contrast to 'our present education which is highly specialised, one-sided and narrow—an education dominated by the mediæval conception of learning.'"

"(3) Life itself gains a new dignity in the eyes of young people of both sexes when the study of its nurture and environment in homes and communities appears as a school or college department under the title of household science, home sanitation or household economics; and when proof is afforded that, to pursue this study in its entirety, an acquaintance with a range of subjects and an expenditure of time are demanded which elevates it to the ranks of other subjects qualifying for a degree in science."

Notes on Individual and Groups of Institutions, etc.

Copies of some of the best schedules and schemes of work, as observed by the writer, add to the value of this most interesting

report. These show from the "grade" school upward that the primary object of the teaching is health promotion.

THE PRATT INSTITUTE AND THE DREXEL INSTITUTE.—Dealing with a number of institutes, colleges, etc., Miss Ravenhill mentions that the Pratt Institute, New York and the Drexel Institute, Philadelphia, "are typical of the best and soundest teaching in these subjects available in the United States; their graduates are in great request as professors in the State agricultural colleges, supervisors under City Boards of Education, teachers in schools of all grades, or directors of household management (*i.e.*, housekeepers or matrons) in colleges, hospitals and other institutions." The syllabus for the general courses shows that a good previous education is imperative.

"General Course— Two Years.	{	Natural sciences—chemistry, physics, biology (bacteriology, botany, zoology), physiology. Applied sciences—hygiene, home nursing and emergencies, public hygiene, household economics, cookery, dietetics, marketing and serving."
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"The special courses are sub-divided into three groups for women who can only devote a few hours each week to such work and are arranged according" to the time at the student's disposal.

"Special Courses—	{	Bacteriology. Emergencies, home nursing, hygiene. Dietetics. Plain cooking. Invalid cooking. Household economics. Laundry work.
Group I.: One year, six hours a week.	{	Bacteriology. Dietetics. Plain cooking. Invalid cooking.
Group II.: One year, four hours a week.	{	House construction, with some sanitary and artistic considerations. Household economics. Dietetics."
Group III.: One year, one hour a week.	{	

In addition to the systematised studies in the domestic sciences, arrangements are made for day and evening classes in cookery for married women and domestic servants, a cooks' course, girls' classes in cooking, marketing, etc. Classes for nurses or kindergarten teachers are organised in sewing, cooking, home-nursing and general hygiene.

A special course of instruction on food economics, intended for men and women qualified by experience and character to hold

responsible positions, is arranged three times yearly—"the result of a demand for persons trained as purveyors for public institutions, hospitals and schools. It embraces the following topics:—the selection of food material with regard to quality and cost; methods of preparation in large quantities; hygiene, emergencies and home-nursing; bacteriology, care of food; dietetics; serving—embodying general dining room economics. Field work—visits to public kitchens and to manufactories of kitchen and hotel furnishings. The institute kitchen and lunch room, serving daily between 200 and 300 guests, supplies the necessary laboratory facilities."

"The fees vary from three dollars to 25 dollars, according to the length and requirements of the course selected; they are usually less in proportion for evening classes. At both institutes there are three months' special courses, day and evening, in dressmaking, two lessons a week for a fee of three dollars (12s. 6d.); a course of the same length in 'advanced draughting and measurement' has a fee of eight dollars. Elementary courses in hand and machine sewing, millinery, cooking, or table serving have an average fee of three dollars. At the Lewis Institute, Chicago, a fee of six dollars for 20 lessons is charged at the evening classes in sanitation, cooking, or needlework."

THE LEWIS INSTITUTE, CHICAGO.—At the Lewis Institute, Chicago, a very full course in domestic economy is arranged "for those who are preparing to teach." By the addition of physics, chemistry and biology "to the special subjects in this department the student may pursue the studies of the B.Sc. group, and at the same time prepare herself to teach domestic economy. This course extends over six years . . . and the laboratory method of teaching is applied to all subjects of study, and in all divisions classes are limited in number to 25 pupils."

UNIVERSITY CENTRES.—"The State universities are usually divided into seven colleges, agriculture and domestic science, art, philosophy and science, engineering, law, pharmacy and veterinary medicine." About 30 of them have instituted courses in household economics, most of which "cover a period of four years and in conjunction with other subjects qualify for a B.Sc. degree."

THE DEPARTMENT OF HOUSEHOLD SCIENCE OF ILLINOIS.—This centre is also mentioned by Miss Ravenhill "as typical of the best methods." The work is constituted "on the true lines of a university subject. . . . Those who desire a knowledge of general principles and facts of household science" may enter for



THE STATE NORMAL SCHOOL, FRAMINGHAM, MASS., U.S.A., ("MARY HEMENWAY" DEPARTMENT). (See page 91.)



THE STATE NORMAL SCHOOL, FRAMINGHAM, MASS., U.S.A. ("MARY HEMINWAY" DEPARTMENT). (See page 91.)

two years, but the full course for students who desire to make "the subject a speciality" requires four years to qualify.

THE STATE NORMAL SCHOOL, FRAMINGHAM (MASS.).—This school (see pp. 88, 90) is stated to be unique in its excellent household arts course, and Miss Ravenhill gives the following details of its establishment and plan of training:—"This was first established by the late Mrs. Hemenway in 1887, under the name of the Boston Normal School of Cookery; in June, 1898, the Trustees of her estate offered the school to the State Board of Education, with the generous proposal that, were the offer accepted, her family would thoroughly furnish and equip the department as a memorial to their mother. The transfer to, and the establishment of, the school at Framingham, as a department of the State normal school was made the following year, the principal object being to provide for the adequate training of teachers of various household arts. In the well-arranged curriculum time is given to the study of those sciences and arts which must underlie any intelligent conduct of the house. The full course is two years, but the essential practice can be gained in one year by those who have previously taken the ordinary two years' normal course; great stress is laid on the personal equation of each student. The classes are preferably limited to twelve students, though the demand at present is so great that almost twice that number have to be admitted. In most instances students cannot complete their training in this line at a normal school, but attend classes at State agricultural colleges or technical institutes."

THE HIGH SCHOOLS.—In these schools, "where the pupils are from 14 to 18 years of age," the domestic subjects are based upon practical and economic lines. "The syllabuses comprise such items as the correct kinds and proportions of foods; the best methods, sanitary and chemical, of procuring cleanliness in the person, clothing and house; an intelligent knowledge of how the water supply, lighting, ventilation, heating and plumbing of a house should be arranged, and such an introduction of economics as shall impress upon the mind of the schoolgirl the fact that upon women devolves the expenditure of at least half the family income, and that much of the comfort and prosperity of the home depends upon her proper and judicious expenditure of this money. The work, though largely experimental, is partly carried on by assigning 'subjects' to individual pupils, the details of which must be worked out from personal observations, by experiment, and from reference books, habits of independent study and of independent thought being thus formed."

At the Central High School, Detroit, the course of physiology and hygiene "brings out the pedagogical and practical character of the subject; observation, accuracy, patience, reflection are all called into action, while opportunity is afforded for the application of other studies. Professor Murbach selects the problems he requires his pupils to solve from facts of daily life so familiar that their scientific and hygienic importance are frequently overlooked, by which means he arouses and maintains the very visible interest of his classes." At the Home and Day High School, Detroit, the practical work in cookery is carried on in well-equipped rooms (see pp. 79, 94). In some schools "advantage is taken to open adult classes. . . . There are also evening classes for working women at the high schools, and day or evening classes in invalid cookery—all carried on by individual practice."

"The use of special text books is not much encouraged; pupils are referred . . . to the works of standard authorities or to suggestive and instructive articles in current literature."

THE FARMERS' INSTITUTES—Among the numerous agencies mentioned by Miss Ravenhill as directly encouraging the teaching of domestic science, she specially emphasises the work of the Farmers' Institutes, which, though outside the regular teaching institutions, she characterises as directly educational. A summer school is held at Chatauqua and "is attended literally by thousands of the general public as well as by teachers"; it offers, as most of the summer schools do, courses of "lectures and laboratory work in applied chemistry, study of food principles, chemistry of fermentation, detection of food adulterants and preservatives, etc." Arrangements are made at Chatauqua for a two years' course, and "the numbers attending the whole or part of the course increase annually." The following syllabus shows the plan of work at Chatauqua:—

		Hours a week.	Weeks.
1st Year	General chemistry	3	for 6
	Physics.....	5	" 3
	Physiology	3	" 6
	Botany of food plants	5	" 3
	Domestic science	5	" 6
	Cookery	5	" 6
2nd Year	Applied chemistry	5	" 6
	Experimental cookery	5	" 6
	Physiology	2	" 6
	Sanitary bacteriology.....	5	" 3
	Home economics.....	5	" 3
	Pedagogy as applied to domestic sciences...	5	" 3

OTHER AGENCIES.—Other organisations—professional, social and philanthropic—are engaged in the promotion of hygienic knowledge. Among these are mentioned the University Extension Association, which is based upon similar lines to the English system, the American Public Health Association, the National Household Economic Association, the Women's Educational and Industrial Union, the Federation of Women's Clubs and the Association of Collegiate Alumnae.

The Lake Placid Conference composed of about 20 experts on hygiene meets annually for a week, its object being "the scientific and sociological study of the home, and its purpose is to work through existing agencies."

"Free popular evening lectures on hygiene are also offered during the winter months in some cities," and so encouraging has the attendance been that the director of these lectures in New York City is arranging a "four years' course" of work entitling students to "receive a certificate possessing genuine value: physiology, hygiene and sociology are among the subjects proposed."

Summary of the American System.

Miss Ravenhill, after giving some exhaustive information upon the plan of work pursued and the advantages offered in the many institutions visited and under the various agencies into the work of which she so industriously inquired, briefly summarises the gist of such information as she could gain.

"(1) The State Boards of Education *do* require instruction in elementary hygiene and physiology to be given to both sexes each year for a specified (variable) time throughout the public elementary schools. Such a requirement is rare in high schools, but to a certain extent it obtains in State colleges, where hygiene forms part of the physical culture course. Domestic science is now a scheduled subject in the public schools of over 50 cities, where it is obligatory for girls in the upper grades; the subject is also obligatory in manual training high schools; it is 'elective' in other high schools and in State college courses.

"The technical institutes are endowed entirely by private funds, and have complete independence; in most instances they offer very ample opportunities for pursuing this study.

"(2) The character of the teaching in both hygiene and domestic science is ensured in all State educational institutions by the employment of highly-qualified teachers (those holding the degree granted by the Teachers' College, Columbia University and the



THE ROOM AND THE GIRLS, EIGHTH GRADE, EIGHTH GRADE, EIGHTH GRADE. (See page 92.)

Diplômées from Pratt and Drexel Institutes are in great request), by the supervision of inspectors in sympathy with both subjects and teachers, and by the provision of suitable, but not extravagant, equipment.

"Outside agencies have played a prominent part in setting the example of initiating such courses in cities, suitable for all ages and both sexes, and by generous contributions to State school equipment; they are carrying on similar good work at the present time in the rural districts.

"(3) Very ample provision for the training of adults in these subjects is found in State agricultural colleges and in some universities, though chiefly in domestic science. Courses in hygiene and sanitation are being more slowly introduced, and, so far, with decided success; in most cases they are the response to a definite demand made by the students. Such instruction is confined to a limited number of centres in each State.

"In technical institutes, which are being widely established, evening courses, specially adapted to adult needs, are almost invariably offered, and appear to be sufficiently well supported to justify constant extension and variety in their departments.

"The evening technical courses average in length three months of one, two, three or four weekly lessons, lasting from two to three hours each. Examinations are not compulsory at the conclusion of such courses, but are open to regular attendants.

"Fees vary from five cents a lesson to three or more dollars for a course of ten lessons, according to locality, class, amount of practical work, calibre of course (elementary or advanced, etc.)

"The demand for highly-qualified teachers at present exceeds the supply, and salaries run high.

"Mixed classes are usual in hygiene and physiology, co-education being the national custom.

"(4) Scholarships to cover incidental fees at college, or the full tuition fees at technical institutes, are granted to a small extent by State Boards of Education or from private sources. The fact that these do not suffice for maintenance detracts from their value, as it is the 'keep' question which most seriously affects young students.

. . . . Scholarships for technical institutes and privately endowed universities are of considerably greater value than those offered by the State universities to cover the small fees and incidental expenses where tuition is nominally free, as their fees run high, but comparison with English scholarships is difficult in consequence of the diversity of details and of social conditions.

"Higher courses in hygiene are taken at universities. Those in domestic science are taken at State universities or at technical

institutes, with the exception of the one fine (private) university course at Columbia University, New York City.

"(5) No attempt has yet been made to reproduce in a school the characteristics of an artisan's home.

"Special rooms are always provided for cooking classes, frequently for needlework, always for dressmaking and millinery. The system of 'centres' prevails for cooking and dressmaking in the grade schools; a small dining-room, furnished and equipped for serving meals, is attached to most kitchens. In all other cases each institution is equipped for the needs of its own students. The chemical, physical and biological laboratories found in all high schools, colleges and institutes are open to the hygiene and domestic science students.

"(6) No school arrangements exist in most States to teach these subjects practically in rural districts; the women's clubs and domestic science associations are just now concentrating their attention on this point.

"(7) Reference has been made to the widely variable cost of equipment; scholars are constantly encouraged to develop resourcefulness and adaptability in this respect. In some cities the boys prepare a good deal of the table, bench, or cupboard fitting, as a part of their manual training work.

"The source of the funds for equipment in all public institutions is taxation, from which specified appropriations are made.

"(8) Chicago University sets the example of special courses in 'citizenship,' considered specially from the hygienic standpoint, and their success is unquestioned; the Departments of Sociology in every university do so more or less."

Its Application to the West Riding.

Miss Ravenhill presents to the West Riding County Council a series of recommendations based upon her observations and "framed after due consideration of the social, educational, economic and sanitary conditions" of the county. They are as follow :—

"That the study of practical hygiene (which should include a working knowledge of physiology) be stimulated and supported in schools of all grades with the object of improving the physique and increasing the efficiency of the population. To this end provision should be made for its intelligent study—(1) by all members of the teaching profession; (2) by adults, of both sexes; (3) by young persons and children.

"(1) The training courses for teachers might be fitly divided into three groups, each conducted on the laboratory method (*i.e.*, individual practical work under supervision).

"(a) A general one session course, suitable for and serviceable to teachers of all types; embracing the whole scope of the subject, approaching it chiefly in its experimental and observational aspects, stress to be laid on the application of scientific theory to hygienic practice. A previous acquaintance with the elements of hygiene and some general practical knowledge of chemistry, preferably also of physics and 'nature-study' to be pre-requisites.

"(b) A two, or even three session course for acting teachers, teachers in training or pupil teachers; to embrace a preliminary, short, practical, introductory study of the elements of chemistry, physics and biology; the various departments of hygiene to be taken subsequently in more detail.

"(c) A special course for teachers of domestic science, devoted to individual practice in the chemistry and physics of household science (cooking, cleaning, water supply, house drainage, etc.), including also an introduction (practical) to sanitary bacteriology (yeasts, moulds, fungi, bacteria of air, water, soil).

"(2)—(a) That efforts be made along the line of university extension methods to cement the interest aroused in adults by popular health lectures, viz., the formation of small classes for more careful and detailed study of the topics presented, which shall be encouraged by the loan of suitable literature, and the members of which shall be eligible under definite regulations to present themselves for examination.

"(b) That the experiment be tried of offering a course of popular lectures on one topic, say, 'food,' 'home sanitation,' 'child hygiene,' where interest has been excited by a preliminary general course.

"(c) That popular lectures be organised on the duties and privileges of citizenship, with special reference to domestic and municipal sanitation; these to deal mainly with the Public Health Acts and other sanitary legislation, treated from the national, municipal, economic, hygienic and personal standpoint.

"(d) That more direct attention and encouragement to the study of hygiene be given in technical institutes by the initiation of one session courses in certain departments of 'applied hygiene,' to embrace in ordered series personal, domestic, social, industrial and civic hygiene, the treatment being on the laboratory method, and by field work. Some grounding in general science and art would be necessary pre-requisites.

“(3)—(a) That suitable schemes for teaching the subject, in whole or in parts, in evening schools be prepared and circulated among school managers and teachers; that practical work by the scholars be imperatively demanded; that the syllabuses approved be not crowded, but elastic and favourable to frequent revision of the subjects treated.

“(b) That the study of civics be more generally adopted in evening schools, and treated by the practical method prevalent in the United States, *i.e.*, by topics for observation being assigned to each class member; this compels observation and reflection, is likely to influence action and arouses marked interest in the student.”

Conclusion.

The constant reference in Miss Ravenhill's report to the determined efforts in the United States to produce by education and training a population noted for its sound physical development may well draw attention to the necessity for making an effort to obtain for the youth of England a more definite training in hygienic subjects than is at present provided. The fact that the State Boards of Education compulsorily require instruction in elementary hygiene and physiology to be given to boys and girls each year for a specified time throughout the public elementary schools of the State strikes the keynote. Interest in these subjects is aroused, and, as the report shows, the ample provision made in various directions for continued teaching is well justified by the large numbers availing themselves of the privileges offered. The systematised arrangements made in “grade” schools, technical institutes, normal colleges, high schools and the State universities may with advantage be studied in the schedules which appear at the close of the report.

MARGARET ELEANOR PILLOW.



THE GIRLS' GRAMMAR SCHOOL, ASHDY-DE-LA-ZOUCH (COOKERY SCHOOL). (See pages 105, 106.)

IV.—THE ORGANISATION OF INDIVIDUAL SECONDARY SCHOOLS.

(Continued from "The Record," October, 1902.)

(R) THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH.*

Introduction.

The following account of the Girls' Grammar School, Ashby-de-la-Zouch, which has received during the last eight years valuable assistance from the Leicestershire County Council, shows the connection between the old endowment, dated 1567, and the scheme initiated by the Charity Commissioners in 1887 for the secondary education of girls in the district.

History of the Foundation.

The history of the Foundation of the Ashby-de-la-Zouch Grammar Schools for both boys and girls can be traced back to 1567, but the origin of the Foundation is somewhat obscure.

The Charity appears to date from the 10th of August, 1567. It was, however, probably established by Commissioners under the celebrated Statute of Edward VI. Documents at Donington Park show that some property, the rental of which was applied to the maintenance of the school, was previous to 1567 vested in Trustees for the Ashby School. It is to the seventh Earl of Huntingdon that Ashby is really indebted for this valuable endowment. The property originally consisted of 26 houses in Ashby and a small quantity of land producing an annual rental of £12. The following is a description of the trusts and deeds :—

"To the intent that the feoffees should, out of the rents and profits of the premises ever thereafter find, maintain and support
 "an able master, teacher and instructor to teach, instruct and
 "qualify those infants and little ones in good manners, learning,
 "knowledge and virtue."

About 30 years later another small property was added to that already possessed, which greatly increased the value of the

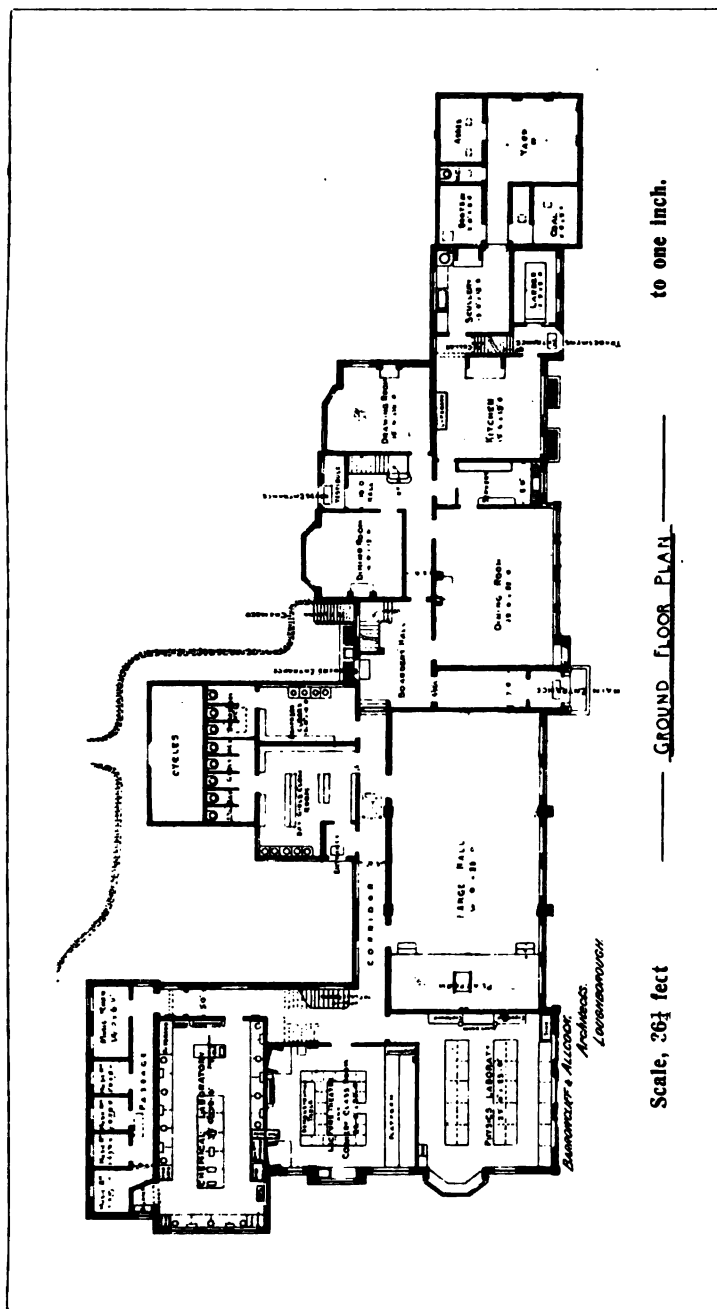
* Reference is made in our Editorial Notes (pp. 6-7) to the action of the Leicestershire County Council concerning the secondary schools in the county.

Foundation. This increase will be best seen by quoting the following statistics:—In 1567 the income was only £12; in 1596 it had increased to £20 9s. 3d; in 1683 it was £43 8s. 1d.; in 1719, £55 11s. 10d.; in 1757, £73 os. 6d.; in 1802, £357 13s.; in 1827, £850; and in 1848, £1,168. The great increase in 1802 was the result of a lawsuit, in which Francis Earl of Huntingdon was the relator, in the Court of Chancery against the Trustees and Master of the school. The increase in 1848 was due to the peculiar locality of the land, which had been let on building leases.

So far the Foundation only dealt with the education of boys, but in 1887 the action of the Charity Commissioners, already referred to, resulted in the establishment of a girls' school, towards the maintenance of which an annual allowance of £200 was made out of the funds of the Charity. A sum of £2,000 was spent in the purchase of a large house with grounds, situated in the central part of the town, and accommodation was provided for a limited number of boarders. The success attending this new venture was so great that it was found necessary from time to time to erect additional class-rooms, cloak-rooms and sanatorium, until in 1899 the Governors, finding that any further extension of the premises was impossible, decided to carry out an extensive scheme for an entirely new building, capable of accommodating 200 pupils. This scheme received the sanction and support of the Charity Commissioners, the Board of Education and the Technical Education Committee of the Leicestershire County Council. On June 25th, 1901, Mr. Thomas Cope, the Chairman of the Education Committee, laid the foundation-stone of the buildings, which were opened on 16th September, 1902, by the Marquis of Granby, Lord-Lieutenant of the County.

Location of the School.

The school is situated on a site between the Nottingham and Leicester roads, on one of the highest points of Ashby-de-la-Zouch, commanding beautiful views of the surrounding district, and possessing the advantages of a perfectly dry subsoil of a light sandy nature upon the upper beds of the sandstone rock. The whole block of buildings (see illustrations on pp. 3, 16) is surrounded by carefully laid-out grounds, comprising an area of over five and a-half acres, with four tennis courts and a hockey field. Whilst enjoying the position of a country residence, the school is within a few minutes' walk of the centre of the town, and only about 15 minutes' walk from the railway station.



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH.

Description of the New Buildings.

The building is Renaissance in character, the front elevation having a tower and two gables, with a Mansard roof between, surmounted by a large ventilating turret. It is faced with red-sand stock bricks; has stone dressings, on one of which the crest and motto of the school have been inscribed; and is roofed with brindled Staffordshire hand-made tiles. The school has been designed to accommodate 200 pupils, and is in conjunction with the head-mistress' house, which provides residence for the school staff and 37 boarders. The main entrance faces the Nottingham Road, whilst the entrances to the head-mistress' house, day girls' and boarders' cloak-rooms and the cycle-house are to the rear.

The walls of the main entrance to the school, the boarders' hall and the cloak-rooms and lavatories, are lined with a cream-tiled dado, while the assembly hall is furnished with a pitch-pine dado, and the whole of the ground-floors are of Canadian maple boards.

The main block of buildings consists of three stories:—

(1) *The ground floor*, which includes (a) the assembly hall—a fine lofty room, 56 ft. by 28 ft., with a permanent raised platform at one end (see p. 146); (b) the physical laboratory, 29 ft. by 25 ft., exclusive of a large bay for the cultivation of plants for botanical instruction (see p. 40); (c) the lecture theatre and cookery school, 28 ft. by 23 ft. (see p. 100); (d) the chemical laboratory, 39 ft. by 19 ft. 6 in. (see p. 39), with a balance room adjoining; (e) two large and well-fitted separate cloak-rooms and lavatories for day girls and boarders; (f) the music school, comprising five separate rooms.

(2) *The first floor*, which consists of—(a) four class-rooms of an average size of 22 ft. 6 in. by 18 ft.; (b) the art studio (see p. 119); (c) the assistant mistresses' room, conveniently placed for ready access to both school and house.

(3) *The second floor*, which consists of four large dormitories, bathrooms and lavatories.

The science school has been supplied by the Technical Education Committee of the Leicestershire County Council with fittings and apparatus of the most approved type, with all the latest improvements and conveniences. The physical laboratory has pitch-pine tables with teak tops for 30 students, a large sliding blackboard, two cupboards, two sinks and a board in canary wood for illustrating the parallelogram of forces. The chemical laboratory is fitted with pitch-pine working benches with teak tops, cupboards, drawers, sinks, filter-pumps and balances for 26 students. The

rest of the fittings include a blowpipe table, two fume niches, a combustion cupboard, a small demonstration table, a large cupboard for apparatus, a sliding blackboard and provision for a sand-bath and muffle-furnace. The balance room adjoining this laboratory is fitted up with slate slabs to ensure a steady support for the balances. The lecture theatre has been designed so that it may also be used as a cookery school (see p. 100), and the fittings are in accordance with these two purposes, comprising a large demonstration table, containing an enamelled slate sink, all necessary gas and water, cookery tables for 21 pupils, a cooking range, gas cooking stoves and a sliding blackboard. The cooking ranges heated by coal were supplied by the Eagle Range Company and those heated by gas by the Richmond Gas Stove Company.

The music school is situated at the extremity of the east wing, and separated from the main block by a corridor, the walls of which, together with those of the music rooms, are built hollow and filled in with silicate cotton, a layer of this material also being placed above the ceilings to deaden the sound, while, as an additional precaution, double doors have been arranged throughout the department.

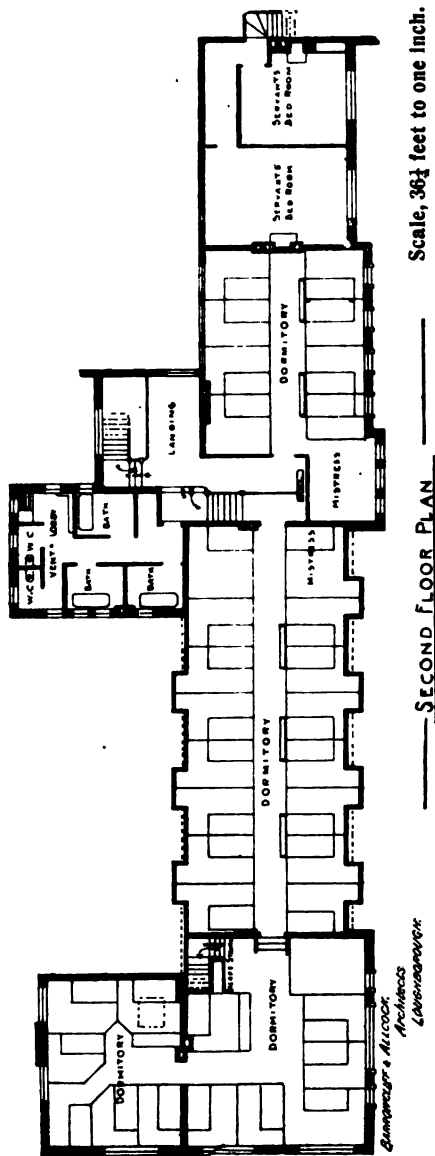
The art studio, which is amply lighted from the north, contains a pitch-pine cupboard, running the length of the room, providing in the most convenient way for the storage of all art requirements. Further provision has been made for the hanging of copies and casts, and the room is supplied with the necessary desks and easels.

The dormitories are all planned on the separate cubicle system, providing accommodation for 37 boarders and four mistresses. The divisions are formed by holland curtains, so that each pupil has practically a private bedroom of her own; the lighting of the rooms is so arranged as to give a window to each cubicle.

The rest of the buildings comprises two stories :—

(1) *The ground floor*, containing the entrance hall, the dining and drawing rooms, the dining hall, 29 ft. 6 in. by 22 ft. (see p. 111), which is separated by a servery and pantry from the kitchen; below the kitchen is a provision cellar, and beyond it are the tradesmen's entrance, servants' staircase, a scullery and other offices and a yard.

(2) *The first floor*, containing six bedrooms, a sewing-room and a box-room, a rest-room (bathroom and lavatory adjoining), so placed that it can be isolated in case of need from the main block, and two servants' bedrooms entirely separate from the other rooms and having an independent staircase to the ground floor.



Scale, 36 $\frac{1}{2}$ feet to one inch.

SECOND FLOOR PLAN

THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH.

A special arrangement for fresh-air inlet and exhaust ventilation has been made for each room, and the heating is by low pressure hot water, the scheme for which has been carried out by Messrs. Messenger and Company, of Loughborough.

Finance.

The total cost of the scheme was £11,000, towards which a grant of £1,000 was made by the Leicestershire County Council for internal fittings. The architects were Messrs. Barrowcliff and Alcock, of Loughborough, the joint contractors, Messrs. W. Moss and Sons Limited, Loughborough and Mr. W. G. Brown, of Leicester. The provision of the technical fittings was entrusted to Mr. A. Faulks, of Loughborough. The money required was obtained by means of a loan raised on the property of the Charity, the principal and interest being repayable in 30 years.

Co-operation of the Leicestershire County Council.

Simultaneously with the appointment of the present Head-Mistress in 1894, during whose *régime* the extensive alterations described above have been carried out, the Leicestershire County Council began their support of the school by an annual grant of £50. This has been supplemented from time to time by generous gifts of apparatus to meet the requirements both of science teaching and of art, and in addition the services of an art-master for one morning a week have been provided.

During the development of the new scheme all connected with the Technical Education Committee of the Council have shown their sympathy in the most active and untiring manner. The keen interest of the Committee in the work is shown financially, not only by the capital grant of £1,000, voted towards the cost of the internal fittings of the school, but also by the promise of an annual grant of £100 towards the maintenance of the science staff; while with respect to the details of the equipment special attention was given by the Secretary to the Committee (Mr. A. J. Baker), who was ably seconded by H.M. Inspector (Mr. Wager) and his assistant (Mr. Leicester), the advice of these officials on points concerning which they possess long and tried experience proving of much value.

The Constitution of the Governing Body.

The Governing Body of the Foundation as at present constituted consists of 13 representative Governors, four co-optative Governors, one of whom is the Chairman, the Rev. Canon Denton, Vicar of Ashby-de-la-Zouch, and three lady Governors, one of whom is the

Countess of Loudoun, representing the family of the founder. The 13 representative Governors are appointed by the following bodies :—

Urban District Council of Ashby-de-la-Zouch ...	Four Governors
Leicestershire County Council.....	Three ,,
Urban District Council of Ashby-Woulds.....	Two ,,
Rural District Council of Ashby-de-la-Zouch ...	Two ,,
Urban District Council of Coalville	One Governor
Nottingham University College	One ,,

The Curriculum.

The scheme of instruction, as given in the current school prospectus, provides for a thoroughly-sound education. The school course includes Scripture, history, geography, grammar, literature, French, German, Latin, arithmetic, algebra, practical and theoretical geometry, advanced mathematics, chemistry, physics, botany, freehand and model drawing, elementary design, needlework, cookery, Swedish drill and class-singing.

The school is classified into seven Forms, three grouped into the lower and four into the upper school, girls over twelve years of age generally being placed in the latter.

There is also in connection with the school a kindergarten department for children between the ages of four and six years, and a preparatory one for those between the ages of six and eight, the latter age being that of admission to the school itself.

LOWER SCHOOL.—The work in this part of the school is arranged so as to give pupils a thorough grounding in reading, writing, spelling, dictation, arithmetic, history, geography, grammar, French, "nature-study," brushwork, freehand drawing and needlework. Much stress is here laid upon the development of the powers of observation and the training of the children in habits of concentration and orderly work, whilst undue pressure is carefully guarded against.

UPPER SCHOOL.—Here the subjects already commenced in the lower school are continued, while mathematics, physical science, botany, cookery, model drawing and elementary design are introduced. Pupils are prepared annually for the Preliminary, Junior, and Senior Local Examinations of the University of Cambridge, and the Matriculation of the University of London, as well as for some of the examinations conducted by the Board of Education. The requirements for more advanced students are met by private coaching in preparation for the examination of the Cambridge Higher Local and that of the National Froebel Union.

SCIENCE.—The science work throughout is on the most modern lines, practical work being carried out in the laboratories by the

pupils themselves. The educational value of the training thus given is excellent, leading as it does to a greater development of the powers of observation than can be attained by any other means; habits of accuracy and neatness are inculcated, and the pupils are taught to draw logical conclusions from the results of their experiments. It is believed that in the case of all girls this training will materially assist them to become efficient and capable women, competent to undertake those duties which make the home what it should be.

MUSIC SCHOOL.—A most flourishing branch of instruction is that of music, great success having attended the work of this department. Pupils are prepared for the Local Examinations of the Royal College and Royal Academy of Music, and for all grades of those examinations held by the Incorporated Society of Musicians.

Scholarships.

The scholarships held in connection with the school are of two classes—(1) five Foundation Scholarships, awarded on the result of an entrance examination, giving free education for three years, and open to competitors from all parts of the country; (2) County Council Scholarships, awarded by the Joint Scholarships' Board, also tenable for three years, and open to competitors from the county only.

Conclusion.

The school whose history we have been recording is one of the few public girls' schools in Leicestershire, and represents a courageous effort on the part of the Governors to bring the education of the girls of the town and district into line with modern requirements. It depends for its support not only on day scholars from the town of Ashby-de-la-Zouch, but also upon day-boarders from the well-populated districts surrounding the town, and upon boarders drawn from all parts of the country. The last are accommodated in the school house and in a private boarding house maintained with the sanction of the Governing Body.

It is confidently hoped that the sound progress which has already been made and the exceptional advantages the school now possesses are a happy augury of its future successful development, and of its establishment as one of the leading educational institutions of a public character in the Midlands. At the recent opening of the school this prospect was forecast by several of the speakers, among whom was Sir William Abney, whose co-operation in connection with the scheme has been most valuable.



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (DINING HALL). (See page 106.)

woodwork, art, commercial and domestic subjects. In order to enable important, yet less popular, subjects to be taught, the Wilts County Council have now, for two years past, granted a lump sum to the Bradford-on-Avon Committee, instead of a grant based solely on attendances. The other sources of income are students' fees, grants from the Board of Education and local subscriptions.

The Mixed Secondary Day School.

A day school for boys and girls was opened in 1897, and carried on in the same building as the general classes of the institute. It was hoped that pupils trained in the school would continue their education in the evening classes, and would furnish a supply of students for the more advanced subjects. This hope has been, to some extent, realised; but many boys, on completing their day school education, have to leave the town, in order to secure remunerative employment. The aim of the day school is to give a good liberal education on modern lines, technical subjects being strictly avoided as unsuitable to an early age. The curriculum consists of the usual English subjects, together with algebra, theoretical and practical geometry, French, theoretical and practical chemistry and physics, woodwork (for boys) and needlework (for girls). Swimming is taught in the summer term, and a football field is in use throughout the winter.

DEPARTMENTS OF THE SCHOOL.—An important feature of the school is the Preparatory Form, for children under eleven years of age. In this Form children are prepared for the upper school by special instruction in such subjects as French, geometry and object-lessons. In French a correct accent is acquired at once by ear, in picture and conversation lessons, reading and writing the language being deferred. In geometry, actual handling of models and practical drawing prepare the way for more abstract work. The object-lessons are brought into line with the subsequent course in science. The result is that children of eleven, on leaving the Preparatory Form, are able to compete with incoming children of 13, whose previous education cannot be dove-tailed with our course.

The upper part of the school is being worked under Division B of the Board of Education's Regulations for Secondary Day Schools. Pupils are prepared for the Oxford Local Examinations and for county scholarships. The number of pupils has risen from three in 1897 to 54 at the present time.

THE PLAN OF TEACHING boys and girls together worked well in school, but was never popular with the parents, who could not be



THE BRADFORD-ON-AVON INSTITUTE AND COUNTY DAY SCHOOL (ART ROOM). (*See page 113.*)



induced to send girls so freely as boys. It has, therefore, been found necessary to re-organise the school on the dual system, an arrangement which appears to satisfy all parties concerned. The instruction is given by two masters and three mistresses, some of whom also work in the evening school. Visiting masters and mistresses are employed for art, music, drill, dancing and wood-work.

The Pupil-Teacher Centre.

A pupil-teacher centre has recently been opened in the same building, and taught by the teachers employed in the evening classes. Thirteen pupil teachers are in attendance, but more time must elapse before any useful report can be made upon this new venture.

Constitution of the Committee of Management.

The Committee of Management consists of the twelve members of the Urban District Council, three members nominated by the Wilts County Council and six co-opted members. This constitution would appear to be excellent, securing, as it does, the interest of the town itself, a representation on the county authority and an opportunity to co-opt specially qualified persons.

V.—MISCELLANEA.

THE INSPECTION OF SCHOOLS AND THE AWARD OF SCHOOL-LEAVING CERTIFICATES.

SCHEME OF THE UNIVERSITY OF LONDON.

I.—INSPECTION OF SCHOOLS.

The University is prepared to undertake the educational inspection and examination of schools, including inspection of school buildings, and, where a sufficiently high standard has been attained and definite conditions fulfilled, to make such examination the basis of the award of a school-leaving certificate. The University recommends that there should be periodical complete inspections of schools (which may or may not include examination), involving consideration of the general scheme of study and the methods of instruction and work, with an opportunity for the inspectors to visit the classes and hear the teaching. The University, however, will, under certain conditions, examine, apart from inspection, either the whole of the school or certain classes or pupils in the school. The inspection and examination may be so adjusted as to test the proficiency of the more advanced pupils, with a view to the award of school-leaving certificates to those pupils who reach the standard prescribed by the University. In every subject this standard will be at least that of the Matriculation Examination of the University.

The following are the conditions under which the University conducts the inspection of schools:—

Any school making application for inspection must submit to the University its constitution or scheme, the general plan of study and the curriculum and time-table.

The inspection will include:—

(1) Inquiry into the aims of the school as related to the circumstances under which it is placed and the general conception of education which it seeks to realise; consideration of its curriculum and arrangements as adapted to its aims, the



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (ART STUDIO). (See page 105.)

distribution of subjects in the time-table, the grading and size of classes, the adequacy of the number, qualifications and remuneration of the teaching staff, the organisation and equipment of the school for studies, physical training, recreation and discipline.

(2) Inspection of the school buildings and fittings in respect of the general requirements both of health and education. This will especially include conditions of lighting and ventilation, and will extend to laboratories, workshops, gymnasium, playground, cloak-rooms and boarding-houses.

The above does not include a complete sanitary inspection, but such an inspection can be held if desired.

The inspector will hear lessons given by the staff, inspect the classes at work and, at his discretion, may himself take any of the classes. In reporting he will note the discipline, tone, alertness of mind and intelligence shown by a class as well as the teaching of the teacher.

If it is desired that the inspector should review the ordinary school examination next preceding or following the inspection, or if the University requires such a review, the questions for each class prepared by the teacher of that class will be submitted to the inspector for his consideration, and he will approve them, or modify them, as he thinks desirable. The answers shall, in the first instance, be read and marked by the teacher, and shall then be forwarded to the inspector, who will make use of them in drawing up his report.

When necessary more than one inspector will be employed, and in such cases one of the inspectors will act as chief inspector and be responsible for the report as a whole. In the case of a girls' school the University will, if possible, arrange that one at least of the inspectors shall be a woman.

The University is prepared to co-operate with local authorities by undertaking the inspection of schools under the control of such authorities.

The University will make a report to the Governors of the school based upon the reports of the inspectors. In form it will consist of two parts:—(1) a general report setting out the conclusions and recommendations; and (2) an appendix, not intended for publication, containing detailed criticisms and references to individual classes and departments of the school work and designed especially to be of service to the staff of the school.

In addition to the report, the inspector will hold such conferences with and make such suggestions to the head-master or head-mistress as he may think desirable. An interview between the Governors and the inspector may also, if desired, be arranged.



THE BRADFORD-ON-AVON INSTITUTE AND COUNTY DAY SCHOOL
(EXTERIOR VIEW). (*See page 113.*)

(S) THE BRADFORD-ON-AVON INSTITUTE AND COUNTY DAY SCHOOL.

Preliminary Work.

The question of giving technical instruction in Bradford-on-Avon was first brought forward in January, 1891, when a preliminary Committee was formed, consisting of county gentlemen, the Urban and Rural Sanitary Authorities, together with the clergy, school managers and teachers of the district. It was resolved to adopt the Technical Instruction Act, and to teach such subjects as art, science, French, agriculture, weaving, etc., for all of which grants were offered by the Wilts County Council. After vain attempts to secure the use of certain existing buildings, the Committee decided, in November of the same year, to erect a small iron structure in the Frome Road. Classes were successfully carried on in this building until 1896, the curriculum being widened to include commercial and domestic subjects and woodwork. The progress of the work may be estimated from the fact that the county attendance grant rose from £78 to £170 in this period.

The New Technical Institute.

In 1894 a subscription list was opened for the erection of a technical institute, with the result that the present edifice (see p. 112) was erected, at a cost of £4,406. Of this sum, £1,024 was granted by the County Council, £500 by the Urban District Council, £478 from the Board of Education, £300 from the Cloth-workers' Company, while local donations account for £2,057.

BUILDINGS.—The institute contains, on the ground floor, a physics laboratory, woodwork room, gymnasium, entrance hall and two class-rooms; on the first floor, an art room (see p. 115), chemical lecture theatre, chemical laboratory (see p. 134), balance room and store-room. The gymnasium (see p. 140) was added in February, 1901, and was the gift of Lord Edmond Fitzmaurice, M.P.

GENERAL ORGANISATION.—The institute is attended by about 250 individual students, who are instructed by a staff consisting of a principal, with two permanent assistants and four visiting teachers. The subjects at present taught are mathematics, chemistry, physics, building construction, art, woodwork, wood-carving, book-keeping, shorthand, typewriting, cookery, nursing and millinery. The popular classes with large attendances are those in

(5) Any pupil in a school at which special advanced papers are set for the school-leaving certificate will, if unusual merit is displayed in those papers, have a mark of distinction affixed to his name, indicating the subject or subjects in which he has distinguished himself. In this case the certificate shall be described as a certificate with distinction in the subject or subjects in question.

(6) A candidate who in any one examination has passed in all the subjects required to make his certificate equivalent to the Matriculation Examination shall at any subsequent examinations be allowed to take such additional subject or subjects, or such special advanced paper or papers, as the authorities of the school may approve. The fact that he has passed in such additional subject or subjects or special advanced papers, together with any mark of distinction he may have obtained, shall be indicated on his certificate or in an appendix thereto.

(7) Any candidate, whether a pupil at a school taking the special advanced papers for the school-leaving certificate or not, will, if he obtains the ordinary school-leaving certificate and is favourably reported upon by the examiners, be admitted to the scholarship examination of the University, and will thus have an opportunity of further distinguishing himself, and, if successful, a note may be added to the certificate to that effect.

(8) Any pupil who has passed the examination for the school-leaving certificate, and who has thereafter passed the Intermediate Examination while still a pupil at the school, shall be entitled to have this fact endorsed on his certificate.

(9) Any pupil who has not entered for all of the subjects required, or has not passed the examination in all of them, shall be entitled to have his attainments set out on a document to be called a school record, which will state the subjects in which the pupil has reached the approved standard.

(10) The course of study pursued by the pupil at the school, his age, the period during which he has attended, and the subjects in which he has reached the standard required by the University will be stated on the school-leaving certificate or school record respectively, which certificate or record shall only be presented to him when he actually leaves the school.

(11) Any pupil at a school which is also inspected by the University, who distinguishes himself in—(a) any form of manual, artistic, or technical skill; or (b) any form of general or special capacity not tested by the examination, may, if desired by the authorities of the school, have a note to this effect added to his certificate or record.

(12) In cases where the Matriculation Examination papers are used for the purpose of the school-leaving certificate the examination will be held on the same days, at the same hours and under the same conditions as an ordinary Matriculation Examination, and the school may for that purpose become a subordinate centre for the examination, provided there shall be at least six candidates from the school and certain conditions are fulfilled. The University will be prepared in special cases, in order to meet the wishes of a school or group of schools, to hold an examination for the school-leaving certificate, at a time other than that of the ordinary Matriculation Examination, provided the whole cost of such special examination is borne by the school or group of schools.

(13) The University will appoint a small Board of Inspectors, consisting of persons of distinction and large teaching experience, who will act as Moderators for the Matriculation Examination, and be at the same time responsible for maintaining the standard of the school-leaving certificate.

(14) A school record, as defined above, shall in no case be accepted in lieu of any part of the Matriculation Examination, or of the school-leaving certificate.

(15) The University is prepared to co-operate with local authorities by undertaking the inspection of schools which are under the control of such authorities. It is also prepared to report on the result of the school-leaving certificate examination with a view to the award of any scholarships and exhibitions offered by such authorities. A small additional fee will in this latter case be charged to meet the cost of a second revision of the papers by the University examiners, with a view to the candidates being placed in order of merit.

The University will offer to the Governing Bodies of those schools at which special advanced papers are taken similar facilities for the award of school scholarships and prizes.

Fees.

Each candidate for a school-leaving certificate will be required to pay a fee of £2, and, if successful, his name will, upon the production of satisfactory evidence that he has attained the age of 16 years, thereupon be placed upon the Register of the University as a matriculated student. Pupils examined for the school record only will be required to pay a fee of £1.

A school not inspected by the University will be required, as a condition of entering candidates for school-leaving certificates, to

pay a fee of £5* and to be responsible for the fee and expenses of the superintendent appointed to supervise the examination, should the University think it necessary to appoint one, and at least six candidates must be entered or the equivalent in fees be paid. If a school, however, is at the same time inspected by the University the inspection fee will be charged in lieu of the above, and no limitation will be placed upon the minimum number of candidates required to be entered. In this case also the oral examination of candidates for the school-leaving certificate will be conducted by the inspectors as a part of the inspection, and the inspectors will take into account the results of the school-leaving examination in making their report upon the school.

An additional charge of £2 will be made for each special advanced paper set at a school. If two, three, or four schools are associated in taking the same special advanced papers, the fee of £2 per paper will be divided between them. If more than four are so associated, each school will be charged 10s. for every special paper.

PROPOSED TECHNICAL COLLEGE FOR WEST CUMBERLAND.

(1) DETAILS OF THE SCHEME.

The Executive Committee appointed in 1901 to consider the proposal to establish a Technical College for West Cumberland have adopted a report of a sub-committee who visited various technical schools in large industrial centres in the North of England, and of whom Mr. J. S. Randles, M.P., was Chairman. The following are the conclusions of the sub-committee respecting the proposed College :—

We have received offers of free sites for the College from the Corporations of both Workington and Whitehaven. From Workington on the 12th of August, 1901, came the offer of the choice of two very good sites, one known as Field House, containing an area of about 4,055 square yards, together with a large house and premises and the other a vacant site of 1,100 square yards in Finkle Street, Workington. Both sites are central and convenient, but of the two we have no doubt that Field House is the superior for the purpose in view ; in fact, we consider it an excellent site in all respects. The offer from Whitehaven was

* This will cover the cost of the oral examination.

contained in a letter dated 14th October, 1901, stating that, on the application of the Town Council, the Earl of Lonsdale offered a site of 3,000 square yards in the Agricultural Show Field, opposite Whitehaven Castle, with a frontage and entrance to the same from Flatt Walks, extending over 5,900 square yards, which would be kept as an open space for all time. This site also we inspected and consider it an excellent one in every respect, being very open and free from noise or being overlooked, while at the same time it is within easy reach of most parts of the town and of the railway stations at Corkickle and Bransty. The reference to the sub-committee does not appear to contemplate any recommendation from us as to the site to be chosen for the College, and we, therefore, merely lay the above particulars before the Committee for their information. It is recommended, however, that, wherever the College is placed, facilities be provided for students from every part of the rated area to attend as far as possible on equal terms. We have had before us a skeleton scheme for the organisation of the College, drawn up by the Vice-Chairman of the Committee (Mr. G. Scoutar, C.E.), and we have agreed upon the following points :—

(1) That the management of the institution be vested in Governors representing the County Council and the local authorities contributing, with provision for the addition of a certain number of co-opted Governors :

(2) That provision be made for instruction in (i.) physics and mechanics, (ii.) chemistry and metallurgy, (iii.) geology, mineralogy and mining :

(3) That the course of study for day students be three years, divided as follows :—

First year—elementary physics, elementary chemistry, elementary mathematics ;

Second year—applied mechanics, including mechanical drawing for engineering students, mineralogy and geology for mining students, physics and chemistry for metallurgical students ;

Third year—advanced mining, advanced metallurgy, etc., advanced engineering, etc. ;

That evening students have the option of taking the same course extended over a longer period, or of taking up the study of special branches bearing upon the industry in which they are engaged :

(4) That the building should be planned so as to be capable of expansion in the direction of provision for instruction in art, commercial subjects and domestic economy :

(5) That the staff at the opening of the College should include a Principal, who should also undertake the teaching of one

department, and two assistant lecturers, together with a secretary, porter, caretaker, etc.—cost of staff to be about £1,500 per annum.

Having regard to the proviso contained in par. (4) above, we consider that a building suitable for present purposes could be provided for a cost of from £10,000 to £15,000, and that it could be sufficiently furnished and equipped for a further sum of from £2,000 to £3,000. In view of the generous offers which have been made it is not necessary to include anything for cost of site. The annual expense of carrying on the College might be put at £2,000.

We conclude with some suggestions as to how this expenditure could be met. Assuming that the College serves an area including the boroughs of Whitehaven and Workington, the urban districts of Arlecdon and Frizington, Aspatria, Cleator Moor, Egremont, Harrington, Maryport and the rural parishes intervening, the population of the area would be about 94,000 and the assessable value £400,000, a penny rate upon which would yield £1,670. This sum, with the addition of an annual grant from the county education fund and pupils' fees, would seem adequate to meet the annual expenditure. The initial cost of buildings and equipment might, we think, be met as far as possible by voluntary contributions from private individuals and from owners, managers and workmen of the industries of the district. . . . £25,000 was subscribed in this way in the Wigan district. The balance could be borrowed by the County Council, provision being made for charging the College with an annual sum by way of interest and instalment of principal until the debt was discharged.

With regard to levying of the necessary rate, there are two courses possible. The one, for each local authority to rate itself, leaving the County Council to rate only the rural parishes not included in an urban district; the other, for the County Council to raise a uniform rate over the whole area, urban and rural alike. Both courses have some points in their favour, the latter having the advantage of greater simplicity and certainty, while the former is more likely to maintain local interest and might be, perhaps, more acceptable to the urban authorities concerned. From the point of view of the College, we do not consider the question is very material so long as the money is raised in one way or another, and the question might be left for settlement between the local authorities and the County Council.

The foregoing report was adopted by the County Council on the 5th February, 1902, and a Special Committee was appointed to inquire into the questions of site and rating area.

(2) REPORT OF SPECIAL COMMITTEE AS TO SITE AND RATING AREA.*

This Committee was appointed on the 5th February, 1902, "to inquire into the question of the most suitable site for the College and as to the extent of the rating area, and for that purpose to hold a local inquiry and take evidence from the various local authorities, traders, manufacturers and other interested parties in the district."

In pursuance of the direction thus given, we held a public inquiry at Workington and Whitehaven on the 22nd and 23rd May, 1902, when a mass of evidence was placed before us, and a very large amount of public interest was displayed. It will be convenient to deal separately with the two questions of site and rating area.

Site.

Particulars have been already laid before the Council of the two sites offered at Workington by the Corporation, and of that at Whitehaven, offered by Lord Lonsdale through the Corporation, and it is unnecessary, therefore, to repeat the description here. The Field House site at Workington and the site near Flatt Walks at Whitehaven are both admirably suited for the proposed object, and the question at issue was, therefore, really in which town was it most to the benefit of the district that the College should be placed.

This question was very ably argued before us for two days by the legal representatives of the two boroughs, and a very large number of witnesses were examined on both sides. In addition to oral evidence, a large number of resolutions from local authorities and other public bodies were laid before us.

After very full and careful consideration of all the facts and arguments, we have come to the conclusion that in order to best fulfil the objects of the promoters of this scheme in providing for the technical training of those engaged in the West Cumberland industries, the College should be placed at Workington. In coming to this conclusion we are not blind to the claims of Whitehaven on the grounds of antiquity, the importance of the

* Adopted at a meeting of the Special Committee on 31st October, 1902, and by the Cumberland County Council on 5th November, 1902. The report was referred by the Council to the Technical Education Committee, who have decided to invite the urban authorities and Parish Councils within the area to be served by the College to send representatives to act upon a sub-committee appointed to carry out the scheme.

coal and other industries carried on there, and the convenience of access from the urban districts lying to the South, but we have been unable to shut our eyes to the fact that not only are the bulk of the iron and steel works situated in Workington or the vicinity, but that the population there is larger and increasing at a more rapid rate, the rateable value is greater, and perhaps the most important consideration of all, there is already there a school of science with an earnest and growing body of pupils ready to form the nucleus of the students of the future College. It is, therefore, with regret for the disappointment occasioned to the supporters of Whitehaven, but without any doubt that we are deciding in the best interests of West Cumberland as a whole, that we recommend the Council to select as the site for the College the Field House site offered by the Corporation of Workington.

Rating Area.

In dealing with the second matter referred to us, we beg to state that in our opinion two main principles should guide the Council in settling this important question, first, the principle that the county should be looked upon as a municipal unit and that as far as possible a spirit of community and mutual sharing of benefits and of burdens should be encouraged throughout the entire area; and in the second place, the general principle of equity, that where special advantages accrue to any particular part of the county, it is legitimate to impose special burdens, and the greater the benefit, the greater should be the burden. Applying these principles, it appears to us that it is impossible to confine this important enterprise to the district generally known as the "West Cumberland Coalfield" only. It must be for the benefit and advantage of the county community as a whole, and we consider, therefore, that it should be regarded as a county undertaking, and that the county at large should be charged with a considerable share of the cost. At the same time, there is no doubt that those engaged in the industries of West Cumberland will benefit in a special manner, and, therefore, it is fair that they should bear a somewhat heavier charge than the rest of the county, and it is further obvious that that advantage will be especially theirs who live in the immediate vicinity of the college, that is to say in the town of Workington. We have, therefore, reached the following conclusions on the matter before us and recommend:—

- (1) That the county at large should guarantee a loan for the building and equipment of the college, not exceeding £15,000

and pay the annual instalment of principal and interest thereon, subject to the plans and specifications being approved by the Technical Education Committee, and any further sums required being raised by voluntary subscriptions or a local rate, and that the College be the property of the county :

(2) That a sum of £1,000 per annum towards maintenance of the College be provided out of the fund derived from the Customs and Excise Duties now applied to technical education :

(3) That a special rating area be formed consisting of the districts and parishes below mentioned, and that a uniform rate of one penny be levied on such area for the maintenance of the College, subject to the following proviso, viz.: that the travelling expenses of students (including, where necessary; special train service) be a first charge on the rate of the district or place sending such students, up to one-half of the proceeds of such rate.

SPECIAL AREA.

Urban District.	Rateable Value.	Population.	Amount Produced by Id. in the £ Rate.		
	£		£	s.	d.
*Aspatria and Brayton ..	15,513	.. 3,000	..	64	12 9
Maryport	40,542	.. 11,666	..	168	18 6
Cockermouth.....	18,017	.. 5,355	..	75	1 5
Workington	102,304	.. 26,047	..	426	5 4
Harrington	18,189	.. 3,641	..	75	15 9
Whitehaven	75,823	.. 19,324	..	315	18 7
*Arlecdon.....	25,604	.. 5,335	..	106	13 8
*Cleator	43,542	.. 8,121	..	181	8 6
*Egremont	45,184	.. 5,761	..	188	5 4
Totals....	<u>£384,718</u>	.. <u>85,250</u>	..	<u>£1,602</u>	<u>19 10</u>

*And the following 15 parishes (subject to convenient train service being provided):—Dearham, Flimby, Broughton, Broughton Moor, Clifton Great, Clifton Little, Seaton, Stainburn, Workington Rural, Distington, Parton,, Moresby, Hensingham, Preston Quarter, St. Bees, a penny rate on which produces £309.

(4) That the matter be placed in the hands of the County Technical Education Committee to obtain plans and estimates and report further to the Council.

NORTH OF ENGLAND EDUCATIONAL CONFERENCE.

The first annual conference of persons in the North of England concerned in primary, secondary (including technical) and other forms of higher education was held in the Manchester Municipal School of Technology on Friday and Saturday, 2nd and 3rd January, 1903.

The conference was the outcome of meetings held earlier in the year as the expression of a desire that some action should be taken with a view to arranging that teachers and others should meet and discuss matters concerned with education, its organisation, ideals and methods. Reference has been previously made in these columns to the facts that representatives from all types of educational institutions and authorities in the eight northern counties were invited to take part in the proceedings, that the arrangements were placed in the hands of a large and representative Executive Committee, the details being delegated to a small sub-committee, and that Governing Bodies of all grades of schools were invited to afford every possible facility for the attendance of teachers.

The first intention was to divide the conference into four sessions and to provide for the reading of one paper at each session. But the applications for tickets were so large in number that it became necessary to make alternative and more extended provision. Owens College and the Central Higher Grade Board School were brought into use, in addition to the Manchester Municipal School of Technology, where the majority of the meetings took place. The following is the programme as finally carried out :—

Friday, 2nd January, 1903 :—

Subject	Opener
"The Curriculum in different Types of Schools."	Miss Burstall, B.A. (Manchester High School for Girls).
"The Value of Natural History Collections for teaching purposes."	Mr. W. E. Hoyle, M.A., M.Sc. (Manchester Museum).
Demonstration on "Experiments in Light."	Mr. A. Adamson (Manchester School of Technology).
"Teaching Experimental Magnetism."	Mr. A. E. Moore (Manchester School of Technology).
"Co-ordination and Delimitation of Science Teaching in various grades of Schools."	Dr. C. W. Kimmins (London Technical Education Board).
"Co-education: its Natural Import" ..	Rev. Canon Rawnsley, M.A. (Keswick).

Saturday, 3rd January, 1903 :—

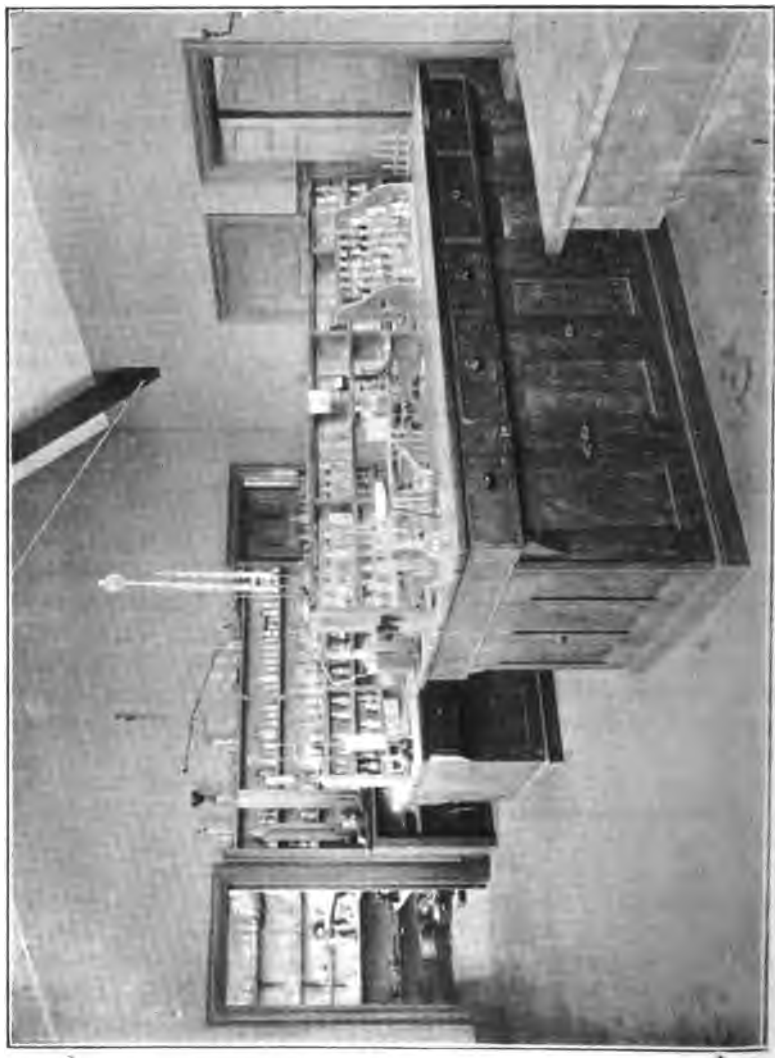
Subject.	Opener.
"The Methods of Teaching Experimental Science in its early stages": (a) Physics, (b) Chemistry.	(a) Principal French, M.A. (Storey Institute, Lancaster); (b) Mr. R. L. Taylor, F.I.C. (Manchester Higher Grade School).
Demonstration on "Experiments in Light."	Mr. A. Adamson (Manchester School of Technology).
"Teaching Experimental Magnetism" ..	Mr. A. E. Moore (Manchester School of Technology).
"The fitting up of School Laboratories."	Mr. J. Lomas (Science Superintendent, Liverpool School Board).
"The Methods of 'Nature-Study'"	Mr. Harold Wager (H.M.I.)
"Teaching of Geometry"	Mr. W. C. Fletcher, M.A. (Liverpool Institute).

These papers proved of exceptional interest and called forth not only on the part of the appointed speakers but from the audiences generally most animated and useful discussions. The Chairmen secured to preside at the reading of the various papers included the Dean of Manchester; Mr. M. E. Sadler, Director of Special Inquiries to the Board of Education; Professor H. E. Armstrong, F.R.S., of the Central Technical College, London; Professors Miall and Smithells, of the Yorkshire College, Leeds; Mr. H. B. Hards, one of H.M. Inspectors of Schools; Mr. James Scotson, M.Sc., Head-Master of the Manchester Central Higher Grade School; and Dr. P. Bedson, of the Durham College of Science, Newcastle-on-Tyne.

As supplementary to the conference meetings, an exhibition was organised of apparatus, preparations and diagrams, such as teachers themselves had prepared or which scholars had made for illustrating the methods of "nature-study" and the teaching of experimental science.

Altogether there were some 3,200 tickets of admission issued, and the conference meetings were very largely attended, the representatives being received on the opening day by the Lord Mayor of Manchester (Councillor Royle), Sir James Hoy, LL.D., Chairman of the Manchester Technical Instruction Committee, the Very Rev. the Dean of Manchester, as Chairman of the Manchester School Board, Alderman H. F. Hibbert, Chairman of the Technical Instruction Committee of the Lancashire County Council, Principal Hopkinson, of Owens College, and Mr. N. W. Helme, M.P.

In the evening a numerously-attended reception and conversazione was held in the School of Technology at the invitation of Sir James Hoy. The expenses of the conference were provided by the Manchester Municipal School of Technology and the Technical Instruction Committee of the Lancashire County Council.



THE BRADFORD-ON-AVON INSTITUTE AND COUNTY DAY SCHOOL (CHEMICAL LABORATORY). (See p. 113.)

ANNUAL MEETING OF THE ASSOCIATION OF DIRECTORS AND SECRETARIES FOR EDUCATION.

The thirteenth annual meeting of the above Association, hitherto known as the Association of Directors and Organising Secretaries for Technical and Secondary Education, was held on Wednesday and Thursday, the 7th and 8th January, 1903, in the Council Chamber of the London County Council, Spring Gardens, S.W., when 39 members were present.

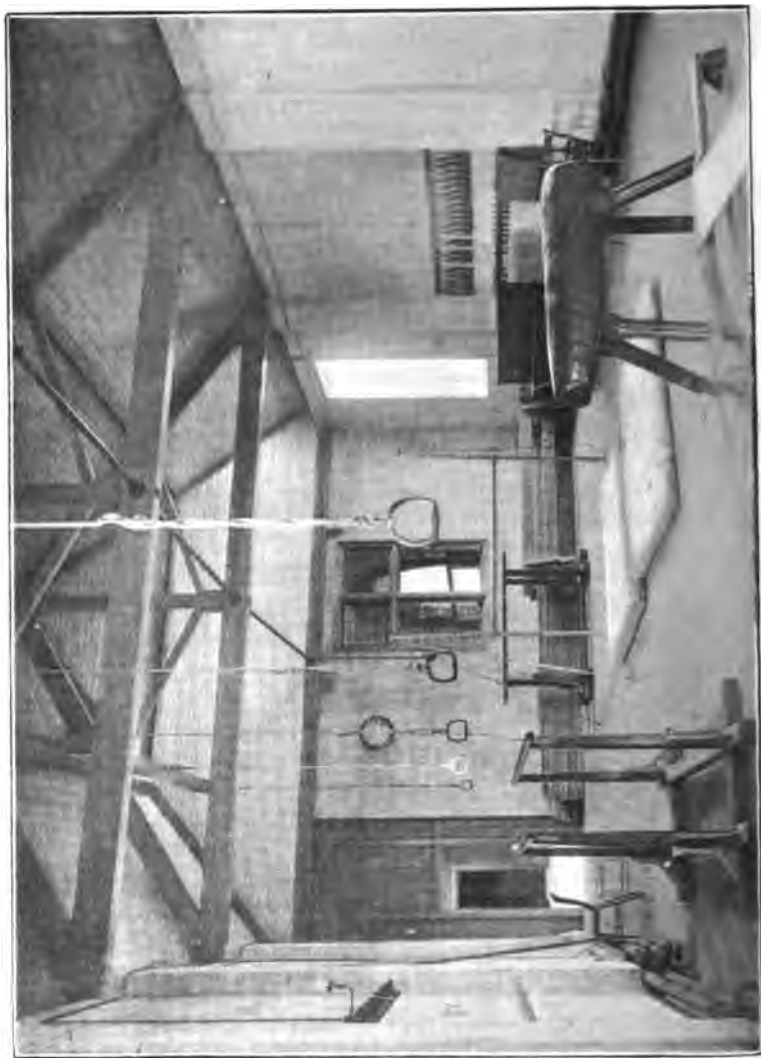
The proceedings upon the first day and the morning of the second day were concerned with the general business of the Association. The report of the Executive Committee recorded, amongst other matters, the action taken by the Association in regard to the Education Act, the appointment of the usual representatives upon other educational bodies, and the retirement of Mr. Thomas Turner (late of Staffordshire) who had for many years acted as Hon. Treasurer. The membership rose during the year to 65, of which 40 represent counties and 23 county boroughs. Nine new members were admitted from Belfast and County Louth (Ireland), Gloucester, Lancashire, Norwich, Rochdale, Staffordshire, West Suffolk and Sunderland. The following elections or re-elections to office for the ensuing year took place:—Mr. Percy Elford (Oxfordshire), Vice-Chairman; Mr. J. H. Nicholas (Essex), Hon. Secretary; Mr. H. Macan (Surrey), Treasurer; and Messrs. Austin Keen (Cambridgeshire), Evan W. Small (Derbyshire), F. Wilkinson (Bolton) and Charles Williams (Northumberland) to fill vacancies on the Executive Committee. The matters of general interest discussed at these meetings concerned the new conditions that would arise as the outcome of the passing of the Education Act.

At the public meeting in the afternoon of the second day the new Chairman (Mr. Courtenay Hodgson) delivered a valuable address upon the administration of the new Education Act. He divided his subject into five sections, dealing with the principles that should govern the relations respectively of (1) the Board of Education and the County Council, (2) the different local education authorities, (3) the County Council and the Education Committee, (4) the Local Education Authority and the managers of schools, (5) the Local Education Authority and the teachers. The following is a précis of the most important points in the address. With regard to (1), Mr. Hodgson declared that

there was not much unanimity as to what precisely the respective functions of the two bodies should be. For instance, a certain class of educational experts would make the functions of the Central Authority as comprehensive as possible; another section, including many head-masters, would say the same, with the proviso that the Board should be reconstituted in certain respects; believers, on the other hand, in local government in deed and not in word only would insist on practically all executive functions being relegated to the County Council, and in this would probably have the support of all those managers of schools who are harassed by what seem to them, at all events, unreasonable demands from a far-off abstraction at Whitehall. But, to put the case briefly, the functions of the Board of Education with regard to *individual schools* should cease and be transferred to the local authority. This was the view taken by Mr. Balfour when introducing the Bill. In the elementary part of the Act, however, there are many cases of direct dealing by the Board with individual schools, *e.g.*, in Sections 17 (3), 8 and 9, and 13. Such provisions may be harmless or even beneficial in the period of transition, but there should be a conference between the Board and the local education authorities to settle their respective spheres of influence. There is no desire for any greater freedom from control than has been exercised under the Technical Instruction Acts for the past eleven years. There should be a strong central body for guiding, advising and stimulating local effort. But, if the Act is to be a success, everything depends upon the interest and enthusiasm of the local authorities. This will not be secured if the Councils are put into leading strings. And opinion at headquarters does not seem to be in favour of making the attempt to hamper the Councils with all the restrictions imposed in the past upon small School Boards and bodies of school managers. As the local authorities find their feet, as it were, this direct control of the Board of Education should be relaxed, until the ultimate goal is reached of practically absolute freedom to local authorities in details of administration, subject, as regards the main lines of educational policy, to the wise guidance and co-ordinating influence of the Minister of Education and his advisors. As regards (2), *the relations between different local education authorities*, the aim to be kept in view is that there should be one authority for all forms of education in each county. This is possible under the Act, though hardly probable, for every administrative county. Few in the small boroughs can understand or grasp the educational advantage of a unified county area, but all can and do cling to their local independence. And yet it will generally pay the boroughs to join the county.

Of course, it should be understood that all boroughs and urban districts joining the county should have *direct representation* on the Education Committee, and also *entire delegation* of management as far as possible of all schools in their respective areas. The county authority does not want to interfere in the management of the elementary schools in the boroughs, but merely to secure a properly co-ordinated scheme of education for the whole of the county. As to relations with other county authorities, there are one or two branches of work in which administrative counties and county boroughs might join. Where, for instance, a technical school or college is in the county borough, but serves also the county area outside the borough. Then, again, even administrative counties might usefully join together for some objects, such as the training of teachers by the joint establishment of a central college; the maintenance of technical or agricultural schools; the conduct of experiments in agriculture, and possibly for a common residential qualification for certain scholarships. But, in the interests of local government, there must be no tampering permitted with county boundaries for general purposes, no fixing of educational provinces, as it were, round each university college. The principle should be, as much unity and co-operation as possible, consistently with the integrity of the county area for general administrative purposes. And moreover, there should be great care taken to avoid interference with the county area from within, by the establishment of independent Education Committees for different parts. Opinion upon (3), *the relations between the County Council and the Education Committee* takes two forms, the "local government" view and the view of the "educational expert." The first view stands for educational efficiency without violating the fundamental axioms upon which that efficiency depends; the second view ignores and even sacrifices the principles of local government in order to speedily secure what is considered educational efficiency. In the Act itself it is made perfectly clear that the County Council is in itself actually constituted the education authority. The reason obviously is that the authority is responsible for a very heavy cost to the ratepayers. On all grounds, then, both of principle and of expediency, the clearest possible recognition of the supremacy of the County Council should be secured. Of course, in practice, the administration of details must necessarily be left to the Committee, whether there is, or there is not, actual delegation to them of powers. All important questions of policy should be approved by the Council, and generally the connection between Council and Committee should be kept as close as possible, consistently with due freedom in non-essentials. To facilitate this, the officials,

or, at any rate, the principal officials of the Education Committee should also be officers of the County Council, and either the Chairman or Vice-Chairman of the Council Chairman of the Education Committee. Upon question (4), *the relations between the local education authority and the managers of schools*, Mr. Hodgson began by declaring that the responsibility for the details of management of individual schools must rest upon the local managers and not upon the local authority. This need cause no regret, but quite the contrary. If it did attempt to directly manage schools, the local authority would lose the capacity for a broad view of the needs of the county, as well as that impartiality so necessary when dealing with different types of schools. The managers, too, would cease to take any interest in their schools, if they would serve at all. The first great principle touching the relations between the two should, therefore, be—control by the authority, management by the managers, or, in other words, questions affecting the external relations of schools to one another and to the county as a whole are the province of the local authority; questions of the internal economy of individual schools are for the managers. Then, that all schools “provided” and “non-provided” should as far as possible be treated alike, and the managers of each sort should be given equal powers. Again, existing local government bodies should, as far as possible, be utilised for managers of “provided” schools, *e.g.*, in an urban district put them under the Urban District Council, and in a rural parish under the Parish Council, with the addition, of course, of ex-School Board members, or others interested in education if thought desirable; but it is essential to get those minor local authorities to take the educational needs of their town or parish under their charge. In speaking upon (5), *the local authority and the teachers*, Mr. Hodgson did not advocate direct payment of teachers’ salaries by the authority, but through the managers, and favoured a similar line of action generally in all questions between the authority and the teachers *as individuals*. That is to say, that the authority should have as little direct dealings with the teachers in the schools as possible, but let all communications pass through the managers. The general rule should be that the teachers are responsible to the managers and the managers to the local authority. But, of course, the authority must deal directly with the teachers *as a body*. In regard to the matter of syllabuses and curricula for the schools, the local authority should act warily. So far as elementary schools are concerned, the Code, with the periodical variations, will operate, but as to evening schools and secondary schools the case is different; and even in elementary day schools greater freedom will, no doubt,



THE WARRFORD-ON-AVON INSTITUTE AND COUNTY DAY SCHOOL (GYMNASIUM). (See page 113.)

be permitted to the new local authorities. Broadly speaking, the preparation of syllabuses and prescribing of curricula is not properly the duty of the local authority, though there may be special cases where such action is justifiable, as, for instance, to meet special local circumstances, or to provide for the teaching of some particular local industry. But generally such matters are better left to those who are actually engaged in the teaching profession. Depend upon it, the schoolmaster, if properly trained, is much more likely to teach successfully upon his own lines. He knows best the capacities of his scholars and their circumstances, and subject, of course, to the supervision of the Inspector the actual teaching is much better left in his hands. In short, if the teaching in our schools is to be permanently improved, it must be done by securing better training for the teachers rather than by the preparation of special syllabuses or the prescribing of courses of study. Mr. Hodgson concluded his address by urging that patience should be freely exercised by all those engaged in administering the new Act.

A discussion followed upon the two subjects of "Co-ordination" and "The Training of Teachers," which were opened respectively by Mr. C. H. Bothamley (Somerset) and Mr. Austin Keen. After some remarks by other members the proceedings terminated.

ANNUAL MEETING OF THE ASSOCIATION OF TECHNICAL INSTITUTIONS.

The tenth annual general meeting of the Association of Technical Institutions was held on Tuesday, the 6th January, 1903, at the Goldsmiths' Hall, Foster Lane, London, E.C., when 60 members attended from all parts of the country. The retiring President, the Right Hon. Lord Avebury, occupied the chair in the first instance, and after receiving the cordial thanks of the Association for his valuable services to them and to education generally, he formally moved the election of Sir John Wolfe Barry, K.C.B., F.R.S., as the President for the year 1903; this was seconded by Professor Wertheimer (Bristol), who alluded to Sir John's work in the matter of the new engineering degree of the University of London, and was carried unanimously.

Sir John Wolfe Barry, in opening his presidential address, said that the value and importance of technical education was admitted by all as a necessity of the time. It was also generally recognised that in our scientific and mental equipment we were behind Germany and America. This was not from want of information, nor from lack of resources. The late Prince Consort endeavoured to show us that commercial success lay through science and not by rule of thumb. Much progress has been made during the last 50 years, but yet our position was not in the least satisfactory. For instance, the matriculated students in German technical high schools outnumbered the students in the whole of the similar institutions and the universities in Great Britain as four to one. In America much the same contrast with us is apparent. What was wanted, above all things, was to convince our manufacturers of the extreme value of technical education. At the same time a warning should be uttered against the over-estimation of the influence of technical education on trade competition; for there were special economic reasons for the recent great development of German and American commerce. Again, all our competitors were protectionist countries, and another important influence in foreign competition was standardisation. It might be said that standardisation is a result of technical education, but it was rather the result of practical business appreciation of the necessity of trade. We were happily alive to its advantages, and we should probably see it adopted in all our important engineering trades. There was also the question that by our long supremacy we have begun to look upon the trade of the world as almost our inherent right. This was, no doubt, in process of amendment. Our feet had, however, not yet been very badly pinched by the shoes of our competitors. The country was holding its own, but it was doubtful if it would continue to do so. The sharp pinch of necessity had not yet absolutely come, but it would if we did not mend our ways. We wanted to render available the highest intellects among us for research as applied to the arts, and to discover and utilise the best possible directing minds in our manufactories. As a means to these ends we must educate widely. We wanted to see in Great Britain the man of science, installed in his laboratory in most important manufactories and encouraged to help in their developments. We desired to see in this country that almost everyone was a mechanic and knew something of applied science, valuing it as the handmaid of commerce apart from its inherent charm. We wanted to obtain our men at their best—when they were young, but not so young as to be without experience. Our object ought to be to turn out our best men fully-equipped in every

kind of scientific and practical education at from 28 to 30 years of age. We frequently endeavoured to produce the manufactured article of the educated man in technology at two early an age. This seemed to be the case from the lowest to the highest levels of our educational system. To take our labouring classes—we allow children to go to work at eleven years of age, while in Germany they were not allowed to do so until twelve, in France until 13 and in Switzerland until 14. The universal complaint among those who directed the technical studies of the artisan class was that they came to them deplorably deficient in primary education. Again, the youth leaving any of our public schools spent some seven years in having Latin and Greek classics driven into him, generally with most indifferent results, and he had little or no knowledge of the classics of his own language. He knew very little of the geography or history of his own or any other country. He knew no foreign language, and he scarcely knew his own. He knew little or nothing of any science. Surely, out of the seven or eight years of public school life, mental training could be given in the scientific and structural study of foreign modern languages, which should also be, of course, taught colloquially. There would be no difficulty in teaching geography of all kinds, some history and applied mathematics and at least one science in a reasonably efficient way. We began and finished technical education at an age which seemed too early. It was to be hoped that, as a large proportion of our technical students were in London, we might look for help in the London University, now happily constituted a teaching university, which would co-ordinate the work of so many teaching institutions of many various kinds, and would induce longer courses of study. It was a satisfaction also to record that the older Universities were working on the same lines, though not in all cases so liberally. Let us, then, not be content with present methods, but aim at something better—some system which would bring out, at the really valuable years, the best of our British intellect. It had no inferiority to that of other nations, its records were of the most brilliant kind, and it was for us to be satisfied with no system which was deficient in grasp or which stopped short of perfection. Finally, let us endeavour to direct the attention of our commercial classes to the fact that technical education of the best and most thorough kind was an urgent and crying necessity if we were to continue in our position among the nations of the world.

A vote of thanks having been accorded to the President for his address, the report of the Council was adopted. It showed that the membership of the Association was the same as last year (65

institutions). The efforts to secure the representation of the Association or adequate recognition of its interests upon the Consultative Committee and the Teachers' Registration Council had been continued; and two representatives had been nominated by the Board of Education to act upon the Examinations' Board of the City and Guilds of London Institute. The views of the Association had been laid during the year before the Board of Education upon certain questions relating to examinations, classes, courses of instruction and grants, and had obtained due recognition.

The Worshipful Company of Goldsmiths entertained the Association at luncheon, at which there were also present Sir Henry Craik, Sir George Kekewich, Sir W. de W. Abney, Sir Philip Magnus and Mr. Henry Ward (Chairman of the London Technical Education Board). Among the resolutions passed at the morning and afternoon meetings were the following:—(1) that the Education Authority for London should be the London County Council acting through an Education Committee; (2) that the separate control of art schools in technical institutions, as proposed by the Society of Art Masters to the Board of Education, would be detrimental to art teaching in its relation to various industries.

The four vacancies on the Council were filled by the election of Mr. J. Morrow (Liverpool), Principal J. H. Reynolds (Manchester), Principal S. Wells (London) and Alderman T. Wetherell (Northampton); the Treasurer (Alderman R. F. Martineau, Birmingham) and the Hon. Secretary (Professor J. Wertheimer, Bristol) were again re-elected.



THE GIRLS' GRAMMAR SCHOOL, ASHBY-DE-LA-ZOUCH (ASSEMBLY HALL). (See page 105.)

VI.—REVIEWS.

NOTES UPON LOCAL ADMINISTRATION IN ELEVEN
COUNTIES AND COUNTY BOROUGHES DURING
THE YEAR 1901-2.*

Berkshire.—Some interesting comparisons of the position of technical education in the various districts of this county can be made by following the geographical divisions suggested in the report of the County Committee. As regards the urban districts, in the north of Berkshire these are small, with populations ranging from under 3,000 to under 7,000; the direct grants from county funds are consequently small, and there are no suitable central buildings or equipment for classes. In fact, one district (Wallingford) has only just started technical classes under a representative committee. On the other hand, in the south and east of the county, with the exception of Wokingham, the populations of the urban districts are much larger, ranging from 11,000 to 14,000 a-piece, and the amounts of county contributions proportionately so. These districts are consequently distinctly in advance of those in the north in respect of facilities for practical instruction. All three districts, again excluding Wokingham, are supplied with technical institutes, two (*i.e.*, at Maidenhead and Newbury) being under municipal control. The following tabular summary shows, better than further comparison can, the relative and collective positions of the educational work (excluding secondary schools) in the districts in the two divisions:—

County Division.	Urban Districts.	County Grant.		Nett Cost of Instruction.		Total Average Attendance.
North Berks...	{ Abingdon	243	£489	.. 219	£460	.. 227
	{ Wallingford ..	105		.. 167		.. 167
	{ Wantage	141		.. 74		.. 140
South and East Berks.....	{ Maidenhead ..	487	£1,558	.. 164	£958	.. 300
	{ Newbury	415		.. 256		.. 334
	{ Windsor	523		.. 440		.. 403
	{ Wokingham ..	133		.. 98		.. 75
Totals		£2,047		£1,418		1,646

From the above figures it thus appears that with three times the amount of grant from county funds the districts in the southern and eastern divisions of the county instruct more than twice the number of students than the northern urban districts at more than twice the cost. Of the total average attendance throughout the whole county (1,646), 583 represents that in evening continuation schools alone. Science and art classes and evening continuation schools are held in all

* These notes are based upon the annual reports issued by the Technical Education Committees.

of the seven districts, domestic classes in five and manual and commercial classes in three. Technology, in the proper sense of the term, finds no place in local schemes, but the deficiency in the number of districts holding domestic classes is fully supplied by similar teaching in the continuation schools, and in respect of commercial classes partly so. As regards the supply and the condition of secondary schools, the state of affairs is exactly the reverse to that of the urban districts. It is in the northern portion of the county that three of the four public secondary schools are situate, and these are efficiently equipped for the purposes of practical teaching in science, art and manual subjects; they contain 251 out of the 379 pupils in secondary schools in the county, 17 being county scholars. The modern school at Maidenhead, by being vested in Trustees and a public endowment scheme being formulated, has been placed by the county authority upon the same level as the other public secondary schools. In addition to this school and that at Newbury, two proprietary or private schools in the south and east divisions appear to receive county scholars as well as Kendrick Schools in the county borough of Reading.

Birmingham.—A special effort is being made to bring the instruction in the evening classes of the municipal technical school into closer touch with the needs of artisan students. As the effort follows upon lines representing the combined experience of other leading technical institutions in the Kingdom, it deserves the attention of all Technical School Committees. The Committee of the Birmingham School describe the situation thus:—

"The manifestation of theory in practical work, and inversely the induction of law from phenomena, are the ultimate objects of a technical school; the universal difficulty is to obtain the first recognition by the student of the necessity for abstract knowledge. . . . The Committee have framed their programme so as to suit both the needs and the wants of working men. As in former years, all students in a practical class are required to attend theoretical instruction as well; but lecture courses have been arranged which are adapted to convey scientific teaching which is especially directed to and illustrated by the operations of some particular trade. To take an example: an average youth in a brassfounding workshop would hesitate long before he entered with general students in a series of lectures on 'metallurgy'; but when he is offered a special course of lessons confined to the shopmates with whom he works in the brassfoundry workshop, and in which he hears of the different properties possessed by varying alloys of copper, he appreciates the usefulness of the class and imbibes knowledge which is both intelligible and acceptable. Throughout the workshop courses this system of special theoretical classes has been adopted."

It is also worthy of notice in regard to the local adjustment of educational agencies, all of which have been harmonious from the first, though not guided by any specific scheme,* that the metallurgical laboratory of the technical school has been thrown open to the use of the Council of the new University, pending the completion of the University laboratories, in connection with which it is anticipated that unique work for this country in mining and metallurgy will be carried out. At the present time the technical school is rendering very valuable service in its metallurgical department, which provides lecture and laboratory

* See article on "Co-ordination in Birmingham" by Councillor R. F. Martineau in "The Record," Vol. VII., April, 1898, p. 168.

courses in various subjects for an average of 500 students in attendance from the various trades throughout the session. It is well that the University should be closely associated with the technical school in the earlier stages of the development of at least this one branch of training of such wide local importance.

Buckinghamshire.—The second annual report of the County Committee clearly indicates that the complete scheme inaugurated in 1900 is steadily expanding. About 10,000 individuals last year received instruction in separate classes, an increase of 2,000 upon the previous return. A classification of the total average attendances, which reached 5,283, shows that subjects allied to agriculture and domestic science secured the greatest popularity—in fact, nearly three-fifths of the attendances were associated with them. A unique departure in connection with agriculture is the appointment of a staff lecturer and organiser in "the principles and practice of agricultural co-operation," as a result of obtaining the sanction of the Board of Education to instruction in the subject as a special branch of technical instruction. Such sanction will, of course, be no longer required under the new Education Act, and it is to be hoped that many other County Committees will see their way to take up this subject, the teaching of which should be found to exert a beneficial effect upon the industry generally. Science instruction is still in its infancy, progress being hampered by the lack of well-equipped laboratories at convenient centres. But, as from the first this deficiency and that of the secondary school supply in the county have been fully recognised, it is only a question of time before the scheme will be satisfactory in these respects. Real advances have already been made. A sum of £5,650, in addition to maintenance grants, has been definitely allocated for new buildings or extensions to schools at five centres, the elevations and plans at two of which (Marlow and High Wycombe) are published; two new secondary schools have been opened in existing buildings by the County Committee; and in the former connection two Urban Councils (Eton and Slough), the first in the county to do so, have resolved to rate their areas, in order to raise £2,000 towards the establishment of a joint school for girls and boys. At the present time there are (excluding those attending private schools and schools in neighbouring counties) only 321 pupils attending public secondary schools in Bucks, and of these nearly one-fifth must, according to age, be considered "elementary" pupils; whereas, in proportion to population, there should be 4,000.

Hampshire.—A statistical summary of the schools and classes conducted in this county during the past three years indicates that the advance of the most significance has been made in connection with secondary education. Within that period, three new secondary schools have been added to the county list, making ten in all, and the number of pupils has been more than doubled; this now reaches 550 and includes pupils attending the secondary school maintained jointly with the Corporation of the Bournemouth county borough, but county grants are paid on account of only 169 of the pupils. The direct money grants allocated to the schools by the County Council and the Board of Education work out to totals of £659 and £826 respectively. There is one feature in connection with the secondary schools here to which the notice of other County Education Committees may be specially drawn at the present time. It is the success that appears to have attended the instruction given in central classes for pupil teachers carried on at secondary schools. At two centres (Basingstoke and Winchester) this arrangement is made, and the classes have

developed much more than at the other eight centres in the county. While at the latter the instruction has been confined to art and physiography, at the two former it also embraces mathematics, French, English subjects and domestic economy. It may, perhaps, be useful to record that the average cost of the instruction per student was just over twice as much as at the less developed centres. Science and art schools and classes and evening schools are, as everywhere else, passing through a period of transition, and the attendances are naturally somewhat adversely affected. But the Director's opinion upon the operation of the new evening school regulations is already that "while entailing "new and considerable duties" they have brought the county authority "into "close contact with every movement in the schools and have been of great "service in the organisation and co-ordination of educational forces." One point in regard to the position of the evening schools may be recorded. More than one-fifth, or 402, of the scholars were admitted last session without payment of fees, and 16 out of the 62 schools were entirely free schools. This freedom does not seem to have increased the attendances, and these schools certainly did not earn more than their proportionate amounts out of the grants awarded by the County Council or the Board of Education. It appears, therefore, to be a question of some doubt whether it is really advantageous to either the scholars or the schools to place no restriction of this kind upon entrance.*

Lancashire.—In our last Volume (January, 1902, p. 110) full particulars were given of all the secondary schools in this county and of the proposals of the County Council in regard to them, which were formulated as late as the end of the year 1900. The initial effects of the allocation of the Council's grants, which, in the first instance, amounted to a lump sum of £3,000 supplemented by an annual subsidy of £1,500, have now been made known. While there has been no real change during the two years 1901 and 1902 in the number and character of the pupils (the attendance in the 22 schools reaches 1,394, of whom between 100 and 200 only are girls), in most cases valuable additions have been made to the equipment of the schools for instruction in science, commercial and art subjects; in some cases the teaching staff has been strengthened, and in consequence important subjects added to the curricula. Some school authorities have been stimulated to obtain additional funds from local sources to go towards the cost of extending or adapting school buildings. New laboratories have thus been, or are being, provided at seven schools, and at Clitheroe a science building is being erected for the joint use of pupils of the grammar school and students of local evening classes. In addition, county aid is being, or will be, given towards the support of day secondary schools under municipal control in the five boroughs of Accrington, Darwen, Nelson, Ulverston and Widnes. There have also been further developments in connection with the scheme of instruction bearing upon the cotton industry referred to last year. After consultation with the representatives of the City and Guilds Institute and with the various lecturers and teachers in the different textile schools in the county, a special course of study was drawn up for scholarship holders, six of whom were appointed for the first time to grants of £60 per annum for two years. The City and Guilds Institute's syllabuses of instruction and examination in the subject have been modified in accordance with the suggestions of a representative advisory committee of Lancashire authorities. As an example of the co-operation

* See also remarks upon this question in regard to the work in Cheshire in "The Record," October, 1902 p. 493.

that exists between the county and other local authorities in Lancashire, it should be noted that the County Council voted one-half of the cost (£5,000) of the fittings and appliances for the new mining and technical college at Wigan, just opened for an outlay of £50,000; more than one-tenth of the 6,200 county students that are drawn into other administrative areas attend this college. As regards students in attendance at schools and classes within the jurisdiction of the county authority, there has been an increase of over 3,000 entries, the bulk of which is due to advances in the 98 urban districts.

Nottinghamshire.—The claims of secondary education, especially in regard to the efficiency of schools in the matter of the provision of more suitable buildings and curricula, have recently received considerable attention in this county. Three secondary schools are undergoing reconstruction in this regard. The design of the County Committee in respect of one of these schools situate in a purely rural district—Tuxford—that it should be converted into a mixed technical, commercial and agricultural school, would have afforded an interesting experiment; but the scheme was vetoed by the Charity Commission. Also three local technical schools have either just been opened or placed upon a more satisfactory footing. The equipment grants voted last year to both kinds of schools amounted to £1,030. With reference to the instruction of pupil-teachers, an important scheme has been inaugurated at Mansfield upon similar lines to the schemes carried on in Hampshire (see above) and also with very successful results, the Governors of Brunt's Technical Schools having established a centre for instruction of the same kind as that given at Basingstoke and Winchester. The various elementary education authorities in the locality and surrounding district have cordially supported the scheme. It is probable that other centres will be established at Newark and Worksop, presumably also at the local technical schools.

Rutland.—The following comparative summary will indicate that there has been practically very little change during the last two years in the character of the technical classes provided in this small rural county:—

Subject. etc.	Centres.			Total Average Attendance.			Expenditure.	
	Year :	1900-1.	1901-2.	1900-1.	1901-2.		1900-1. £	1901-2. £
Evening Continuation Schools ..	14	12	..	452	420	..	193	187
Ambulance and Nursing	8	4	..	179	157	..	72	42
Veterinary Science	2	6	..	93	171	..	19	39
Horticulture	—	2	..	—	117	..	—	10
Sheep Shearing	3	3	..	71	78	..	50	50
Dressmaking	4	1	..	61	12	..	38	15
Art	1	1	..	18	15	..	30	25
Woodwork	1	1	..	11	12	..	15	20
	—	—		—	—		—	—
Totals	33	30		885	982		£417	£388
	==	==		==	==		==	==

The administrative conditions also remain unchanged, and the remarks made in our last Volume (p. 114) upon these, consequently, still hold good. The County Committee's programme had again to be curtailed owing to the restriction imposed by the County Council appropriating only a portion of the

Grant for educational purposes. Under the provisions of the new Education Act, however, a more satisfactory state of affairs will certainly be inaugurated, and it may be well to consider the desirability of securing combination with a neighbouring county, at any rate for the purposes of higher education.

St. Helens.—The deplorable effect, as seen in this county borough, of the unsatisfactory state of things in regard to the lack of students properly prepared for technical studies was described in these columns last year (see "The Record," Vol. X., No. 41, p. 121). Since that time what is described by Mr. T. B. Shaw, one of H.M.Is. of science and art schools and classes, as a "bold step" * has been taken by the Technical Instruction Committee, and there appears to be a probability of other authorities adopting it. They have instituted "a preliminary course of study . . . making it compulsory on all new students. Compulsion in evening classes is a new thing, and the idea was received with some hesitation. Consideration was given to the voluntary character of all evening school work, the possible reduction in the number of students, the interference with the elementary classes and with the evening continuation schools. But it was agreed that public money should not be spent on other than earnest students, and it was felt that such a course as that one approved by the Committee was necessary before substantial progress could be made in the science and technological classes. The result has been very satisfactory. The full course was taken by about 100 students. The average attendance was 73. At the end of the session 67 students presented themselves for examination, and 51 passed with credit. These latter 51 will be allowed to proceed to the various courses of instruction in science and technology—the remainder, if not already sifted out, must re-take the preliminary course. Undesirable students are thus eliminated at the outset, and the energies of the school concentrated on those most likely to benefit. The science lecturers and teachers will now be assured that their students possess a minimum amount of knowledge, and can set out their schemes of work accordingly, and proceed without having to give incidental lessons in arithmetic, composition, etc. Many inquiries from neighbouring towns have been received with respect to this compulsory preliminary course, its adoption having been advised by H.M. Inspectors."

The effect upon the science classes of the retention of students in the preliminary course was a reduction of 150 in the number of students' entries and of 70 in the average attendance. Upon this the Director (Mr. J. J. Broomhead) remarks:—the course "acting like a net, swept into its own folds the students who would otherwise have reinforced the elementary science classes. It is to be expected that next year the advance classes will feel the loss in numbers, but eventually, without doubt, the whole school will benefit." For the information of other authorities who may be contemplating similar experiments, it may be stated that the compulsory preliminary course at the Gamble Institute, St. Helens, occupies three evenings per week, the subjects taken being mathematics, geometry, English and theoretical and practical science. No student is admitted under 15 years of age and the composite fee is 7s. 6d. per session. As recommended by the Director before the inauguration of this preliminary course, 50 free scholarships are granted, upon application, to certain

* See "General Reports of H.M. Inspectors on Science and Art Schools and Classes and Evening Schools for the year 1901," published by the Board of Education, p. 28 [Cd. 1,214].

pupils in evening continuation schools, and these may now be held for the course itself: last year, being the first year of award, 70 applicants received scholarships.

Somerset.—The excellent work that has for years been undertaken by the County Committee, at one time in conjunction with Devonshire, in connection with their summer meeting for teachers has had a beneficial effect upon technical education generally and has received deserved attention in many quarters. The following opinion of the Committee, based upon their experience of the real value of the instruction as imparted by this particular method of training, is, therefore, worthy of special notice:—"It seems desirable to point out that the not uncommon practice of referring to summer meetings of this kind as 'short courses' of instruction, and regarding them as of less value than what are sometimes called 'systematic courses,' is often not justified by the facts. At this summer meeting each student takes two subjects and receives not less than 40 hours' instruction in each of them, a proportion of time which considerably exceeds that frequently given to a subject in an ordinary science class extending over the whole of a winter session. Experience, in fact, shows that when the instruction is carried out on right lines and is largely of an experimental character, courses of the duration specified are quite sufficient to afford a sound elementary knowledge of the subjects dealt with, and the work in the summer meetings continues to have a markedly beneficial effect on the work in the evening continuation schools. . . . Similar effects are traceable in the elementary day schools, and there seems no doubt whatever that the science instruction given at the summer meetings during the past nine years has led in many cases to the introduction of elementary science lessons in the day schools." The practical utility of the county scholarship scheme is well substantiated by a complete Return, compiled with the assistance of the head-masters of the secondary schools, showing, as far as possible, the subsequent occupations of all junior scholars appointed during the first ten years since the scheme was inaugurated, *i.e.*, from the year 1891. It appears that of the 162 scholars (all boys) appointed, 46 were elected to intermediate scholarships, while no fewer than nine boys have passed from public elementary schools to universities or other institutions providing the highest scientific and technical instruction. Of the total number, but excluding at least 17 scholars who have not yet completed their scholarship careers, as many as 31 scholars have directly taken up the teaching profession or are pursuing special courses of professional study. Upon this matter it is unhesitatingly declared:—"There can be no doubt that the systematic course of study which they have received in secondary schools during their tenure of their scholarships has formed a much better equipment for their subsequent career than the ordinary training of a pupil-teacher." Following upon the abandonment of the agricultural side to the County School, Wellington, and of the subsequent decision to encourage agricultural teaching among the secondary schools generally,* it appears that two schools, in addition to the above—at Blackford and Shepton Mallet—are already taking the special science course for rural districts prescribed by the Board of Education. The schools are visited weekly by the agricultural staff instructor, who devotes his attention to the upper boys. The amount of concern that has always been shown for the development of permanent institutions may be conceived from the fact that the county

* See "The Record," January, 1902, p. 114.

expenditure and liabilities for capital purposes now stand at £24,745. This sum has been distributed to 26 secondary schools and science and art and technical and other institutions.

Sussex (East and West).—The bearing of elementary education upon technical instruction, and the baneful results that may accrue to the latter from any defects in the former, need no emphasis. It, therefore, becomes all local authorities, in providing for higher education in its various forms, to take stock of the position and condition of elementary education in their areas. Careful summaries in this regard are given by both of the above counties. The main purpose of these summaries is evidently to show what work remains to be done for those annually leaving the elementary schools so as to enable their general education to be continued or to train them specially for industrial and commercial pursuits. Thus, in East Sussex between 6,000 and 7,000 pupils leave school each year; and in West Sussex between 3,000 and 4,000 do so. While it is not suggested that it is the business of the two County Councils to find suitable supplementary training for all these pupils, the figures may not unfairly be compared with the statistics set out below, which record the recent attendances of all kinds of pupils of all ages enrolled in all types of classes falling within the range of technical education. There is considerable similarity not only in respect of the composition of the schemes in force in both counties but also of the results that have been obtained. A good example of this is found in the schools of domestic economy established at Lewes in the Eastern and at Worthing in the Western portion of Sussex, and both placed under the supervision of Ladies' Committees, who also successfully organise county classes in various subjects of interest to women. The practical value and usefulness of the training, lasting from three to twelve months, offered by these schools to girls leaving public elementary schools have been often proved; the training also acts as an incentive to them to take up the domestic service. Again, the development of day secondary schools, in regard to both their number and facilities for modern teaching, is even now a matter of some urgency in both divisions of the county. In East Sussex "at the present time there is no public secondary school for girls, and only one such school properly equipped for giving sound scientific instruction to boys. The two existing endowed schools for boys are situated at opposite points of the county," *i.e.*, Rye and Uckfield. The first statement applies in just the same way to West Sussex, and there are also two boys' grammar schools (*i.e.*, at Midhurst and Steyning) that would bring about an improvement if supplied with laboratories for practical science. Likewise, there is a great paucity in evening continuation schools in both areas. The tabulation of the following figures is quite enough to show that there is still a duty devolving upon the county authorities of fostering these schools, and that it is as urgent in its way as that of developing the secondary schools.

	Number of Schools.		Number of Registered Pupils.		Total Average Attendance.		County Council Grant. £
East Sussex	8	..	495	..	299	..	75
West Sussex....	5	..	301	..	173	..	35
	—		—		—		—
Totals....	13	..	796	..	472	..	£110
	==		==		==		==

The following synopsis of the expenditure and of the classes and attendances indicate (a) the lines of similarity pursued in regard to organisation and to the

different branches of instruction and (b) the extent of that instruction promoted in the two areas :—

Year: 1901-2.	East Sussex.		West Sussex.	
	£		£	
Agriculture: Training School and Farm ..	4,042	..	—	
Minor Industries	766	..	231	
Domestic Science: Training School	744	..	836	
County Classes	491	..	335	
Town Councils	3: 1,745	..	2: 575	
Science and Art Classes	588	..	895	
Secondary and Science and Art Schools ..	417	..	165	
Miscellaneous Classes	928	..	938	
Scholarships	599	..	366	
Evening Continuation Schools	75	..	35	
Central Organisation.....	404	..	317	
	Year: 1900-1. 1901-2.		1900-1. 1901-2.	
No. of Lectures or Lessons	4,829	5,699	.. 4,431	3,759
No. of registered Students	5,734	5,929	.. 5,054	4,382
Total average attendance.....	4,047	4,178	.. 3,576	3,174

The maintenance of the East Sussex Agricultural Training School and Farm is, as appears from the above statement, a heavy strain upon the county funds. It is true that a complete re-organisation of the college, as well as expensive farm improvements, are now going forward. The success of the educational work appears, too, to have more than met expectations. The demand for college accommodation has been such as to necessitate additions to be made in order to put up 22 more resident students. But, even so, the adoption of a new experiment serves to emphasise the anxiety of the college authorities to remove every loophole of difficulty to the entrance of suitable agricultural pupils to the advantages of the college. The reason for, and the nature of, the experiment is thus described :—" It has been brought to notice that the length and expense of " a full two years' college course at the agricultural college constitutes a barrier " over which the average farmer's son cannot climb. Accordingly, it is intended " to endeavour to establish *short courses of instruction*, consisting of not more than " twelve weeks, and divided as follows, viz., six weeks before Christmas and six " weeks after Christmas. The instruction given will be far more elementary " than that comprehended in the college course, but it will be of a character " suited to the demands of young men wishing to acquire a theoretical knowledge " of the practical work in which they are daily engaged on the farm; by " arranging these short courses, to be taken during the winter months, it is " hoped that farmers will be able to spare their sons at a time when farm work " is not so pressing as during other periods of the year. Full details of these " courses of study will shortly be published, and your Committee have in " contemplation the establishment of special scholarships for such short " courses."

Yorkshire (North Riding).—The secondary schools in this county have been subjected to a close examination during the past year, in view of the probability of legislation. " A considerable volume of fact and opinion " has been collected by the visitation of the schools by the County Council's officials and by means of inspection by the Board of Education. While the number of county pupils in attendance has risen from 477 to 551, the condition and standard of the

teaching in some schools is declared to be unsatisfactory. This can be quite understood by the mention of the fact that only two schools aided (one of these being situate outside the county area) provide instruction in experimental science, while the summary of the technical subjects taught in all the schools also shows that there is a complete absence of manual instruction. The new municipal secondary day school at Scarborough, of which it may be possible to give a separate account in a later issue, is probably possessed of the best buildings and equipment in the county, but the pupils in attendance are not included in the numbers recorded above: the head-master's salary has been partly guaranteed by the County Council. For this school, as well as Middlesbrough High School (also for boys and girls and upon which a special article has already appeared in "The Record" *) occupy the most important positions in the county scheme. Almost all the local exhibitions awarded (or what are usually known as "junior scholarships") are being held in these two schools. The reorganisation of the other secondary schools in the county is, however, sure to have the effect of widening the operation of the county scholarship scheme. A good deal of money will have to be appropriated before this work can be accomplished. Last year a sum of £1,100 was allocated to the schools or maintenance and equipment and to cover the cost of inspection.

* See No. 47, July, 1902, pp. 295-8.

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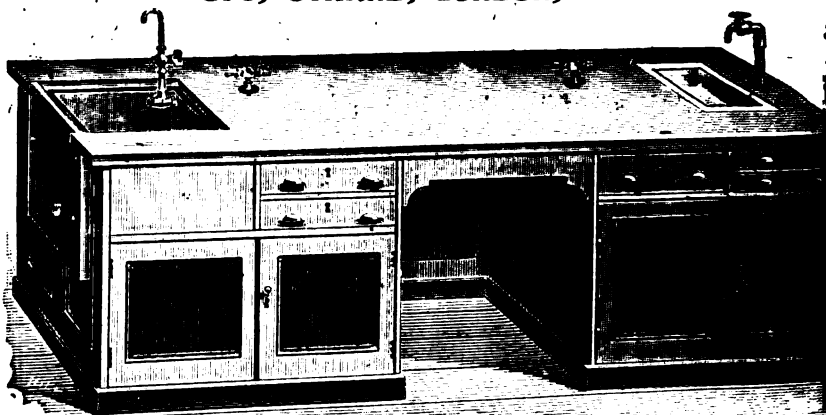
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Record

OF TECHNICAL AND SECONDARY EDUCATION.

A QUARTERLY JOURNAL OF THE PROGRESS MADE BY
COUNTY COUNCILS AND OTHER LOCAL AUTHORITIES IN
THE ADMINISTRATION OF THE EDUCATION ACTS.

XII.]

APRIL, 1903.

[No. 50.

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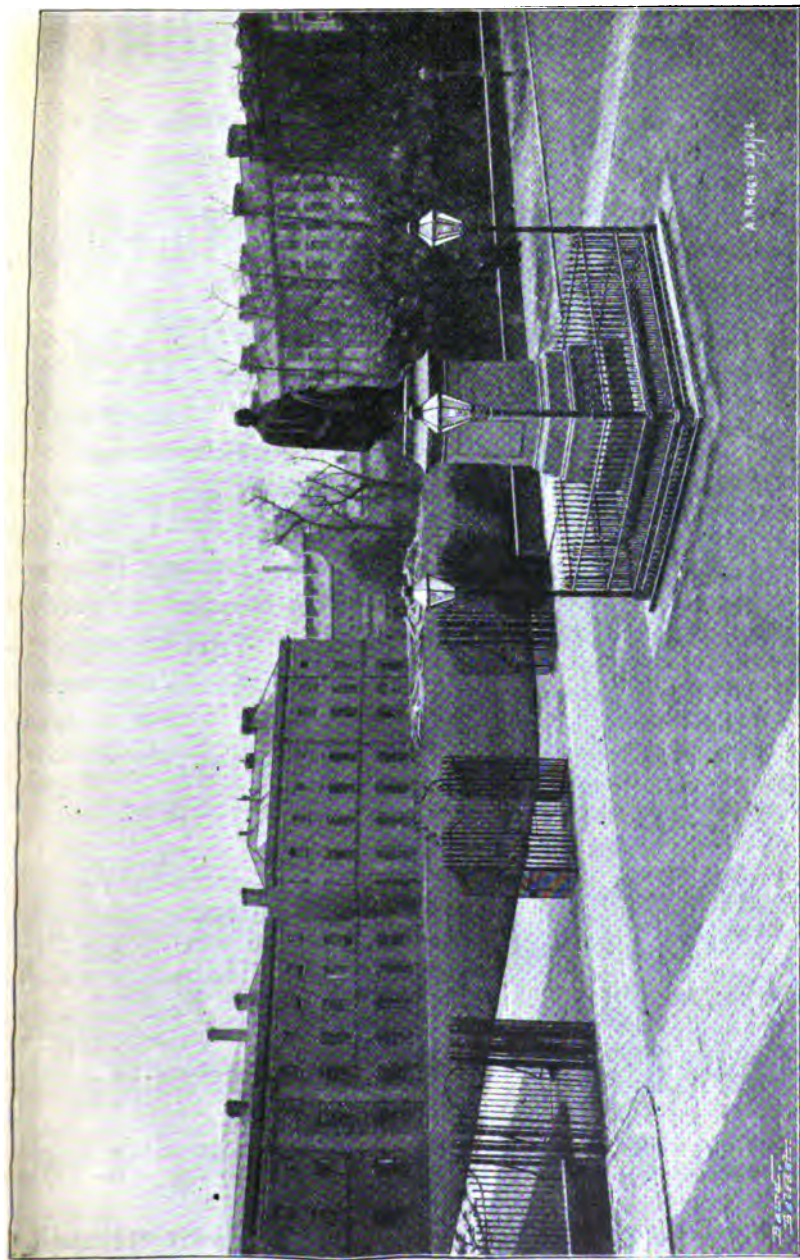
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THE Association for the Promotion of Technical (including Commercial and Agricultural) Education aims at encouraging those educational reforms which will improve the capacity, in a broad sense, of all those upon whom our industries depend. Its object is not to interfere with the teaching of trades in workshops, or with the industrial and commercial training in the manufactory and in the warehouse. It desires (1) to develop increased general dexterity of hand and eye among the young, which may be especially useful to those who have to earn their own livelihood, and at the same time improve rather than hinder their general education; (2) to bring about more widespread and thorough knowledge of those principles of science and art which underlie much of the industrial work of the nation; (3) to encourage better secondary instruction generally, which will include more effective teaching of foreign languages and science for those who have to guide our commercial relations abroad, and to develop our industries at home. With these and similar objects in view, the Association desires to bring about an improved organisation of the Industrial Education of both sexes in accordance with the needs of various districts. One of its main purposes is to stimulate public opinion by encouraging consultation and discussion between the representatives of various localities on the subject generally, and on any legislation that may be proposed, by conferences and meetings in various towns and villages; and by the diffusion of information in a cheap and popular form. The Association wishes where it can do so, to make better known the work of existing institutions, and to act in harmony with all those who are interested in bringing about more effective progress in a matter of the utmost importance to the country.

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I.—EDITORIAL NOTES.

We print on pp. 251-5 the London Education Bill, and, as the measure has now passed the second reading stage, Parliament has finally decided that the London County Council shall be the Local Education Authority for the County of London. It was authoritatively stated during the debate in the House of Commons at this stage that the central principle of the Bill was the establishment of the County Council as the Local Education Authority, and that the constitution of the Committee through whom the Council were to act, together with the machinery through which the detailed administration of the schools was to be effected, were secondary matters which could be dealt with at the Committee stage. We do not propose to consider the question from the point of view of party politics; but, as an educational journal, we are anxious to enter into the discussion from the standpoint of those who are primarily concerned with the problem of 'education other than elementary,' and with the aim of linking that problem to our representative local government. The establishment of the London County Council as the Local Authority for all grades of education is now, of course, a *fait accompli*, and we assume that all educationalists are agreed in the policy of endeavouring to secure as efficient a system of education as it is possible to obtain for the metropolis under that Authority.

* * * * *

As we anticipated, the text of the Bill is exceedingly short, consisting of five clauses only and extending to less than a page and a-half of print. This is followed by a couple of pages of schedules, of which the first sets forth the manner of the constitution of the Education Committee and the second specifies the modifications to be made in the Education Act of last session in its application to London. The third schedule enumerates certain repeals in the elementary and other Acts which cannot apply under the new *régime*. The main feature of the Bill lies in Clause 1, which provides that the Education Act, 1902 (in this Act referred to as the principal Act), shall, so far as applicable, and subject to modifications made by the Bill, apply to London. When the modifications are made and the parts which are

inapplicable are omitted, the principal Act represents over 90 per cent. of the complete measure. To understand, therefore, the effect of the present Bill, it is necessary to read it along with the principal Act as modified by the second schedule, and it is also useful to read it in conjunction with Circular 470 of the Board of Education, which we reprinted on pp. 23-7 of our last issue.

* * * * *

It will thus be seen that the principal Act forms a large part of the complete measure. As in the case of a county borough, the rate which may be raised for the purposes of 'education other than elementary' is unlimited; the Residue Grant is specifically appropriated to education other than elementary; the County Council are to be the Local Education Authority; and the Council's powers with reference to the supplying or aiding the supply of education other than elementary (including the award of scholarships) are the same as in the case of a Council of an administrative county under the principal Act. But when we refer to the constitution of the Education Committee, we notice a departure from the arrangements contemplated by the principal Act. Under the Education Act, 1902, a County Council would prepare a scheme for the constitution of their Education Committee, the principal restriction being that the Committee must comprise a majority of "persons who are members of the Council, unless, in "the case of a county, the Council shall otherwise determine," so that the Council may be responsible to the ratepayers for the manner in which the Committee may use any power delegated to them by the Council. By the terms of the present Bill, the London County Council are to appoint 36 of their own members on the Education Committee and are to prepare a scheme for the appointment of 25 other persons, while five members of the present School Board are to be appointed by the Council to serve on the Committee for the first five years. In addition to the 36 Councillors, the 25 outside persons and the five members of the School Board, there are to be placed on the Committee 31 nominees of the Councils of the metropolitan boroughs, including the City of London.

* * * * *

This departure from one of the chief features of the principal Act has evidently been further considered since the introduction of the present measure; and, during the debate on the second reading, Mr. Balfour declared the sole object of the London

Education Bill to be "to apply the principles of a Bill already on the Statute Book to the metropolitan area," his whole speech being an unmistakable manifestation of a desire to effect this object. As a result, certain amendments, submitted by Sir William Anson on behalf of the Government, and by Sir John Gorst as a private member, were eventually accepted by the House of Commons, and these will fully secure not only a majority of members of the County Council upon the Education Committee but also greater freedom for the Council in the constitution of their Committee. The representation of the London Borough Councils is to be retained by a system of grouping, with the exception of the Corporation of the City, who are to send one representative to the Education Committee, eleven representatives being allocated to the remaining Borough Councils; and the total membership of the Committee is to be determined by the County Council subject to (1) the possession by that Council of a majority of the whole Committee, and (2) the inclusion of (a) the twelve members of the Borough Councils as already explained, (b) 25 co-opted members and (c) five members of the existing School Board—the inclusion of the last-named five is, however, left to the Council's option.* It is to be hoped that the Government will receive the hearty co-operation of all sections of reformers in an endeavour to construct an educational system for London which will yield results of truly national advantage.

* * * * *

The tenth annual report of the Technical Education Board of the London County Council has just been issued, and a careful perusal of the document will demonstrate the capacity of the municipality of the chief city of the Empire to efficiently discharge the functions which are necessary to meet the educational needs of a huge and varied population. It is obviously impossible to adequately review in a few lines 115 pages of such interesting matter as cover the efforts made by the Board during the year ended 31st March last. But, in order to meet the general desire to become fully acquainted with the information thus presented to the public, we shall endeavour to publish in our next number a detailed examination of the report. The continuous and extensive development of the Board's operations under the powers conferred by the Technical Instruction

* Since these notes were written, further amendments, involving *inter alia* the omission of Clause 2 and of the first schedule, have been agreed upon by the Government and accepted by the House of Commons. We shall deal in our next issue with the measure as finally passed by Parliament.

Acts must afford considerable gratification to those who have laboured so earnestly in this connection, and now that a systematic organisation of all forms of education is at hand, the influence of these exertions must become even more manifest. It appears that for the year 1894-5 a sum of about £42,000 was disbursed by the Board upon the several branches of their work, whereas for the year 1902-3 the disbursements reached about £236,500. To mention only two branches of the Board's work: (a) in the year 1894-5 the scholarship scheme absorbed £5,805, as against £33,980 for the year 1902-3; (b) in the former year there were in existence 121 trade classes, compared with 309 in the latter year, when classes were organised for no less than 64 different trades—an addition of 39 trades since 1894-5. It will be promptly recognised that an effective scholarship scheme is closely bound up with a complete educational system, and the report before us supplies ample proof of the effectiveness of the Board's regulations in this regard. With respect to the trade classes and their permeating influence in the direction of industrial progress, the figures given above are, indeed, full of encouragement. But, as already stated, we propose to deal more fully in our next issue with this valuable report, which includes 45 excellent illustrations of the interior and exterior portions of certain London institutions.

* * * * *

In our last issue it was announced that the Executive Committee of the National Association for the Promotion of Technical and Secondary Education had resolved "to hold a Conference of " Local Authorities and other Educational Bodies with a view to " inducing and assisting the new Authorities to pay proper attention " to the interests of higher education." This Conference was held in the Hall of the Institution of Mechanical Engineers, Westminster, on the 17th of March, when Lord Avebury, the Treasurer and one of the Vice-Presidents of the Association, presided over a gathering thoroughly representative of all parts of the country. A full and revised report of the proceedings at the Conference has been issued and already widely circulated. In view, however, of the many important and practical suggestions made at the Conference, we trust that Local Authorities generally will specially refer this report to the consideration of their Committees who are entrusted to deal with questions connected with higher education. With the object of drawing further attention to the Conference, we have deemed it advisable to publish, on pp. 173-91,

a report embodying, *inter alia*, the speeches of those who moved and seconded the three general resolutions which were submitted for consideration in order to give some definite direction to the discussions. The names of all those who spoke at the Conference will be found in our condensed report, and will amply testify to the value of their deliverances. It is pleasing to note that all three resolutions, which are given *in extenso* on pp. 177, 184, 188, were adopted unanimously, and that, consequently, there is not any divergence of opinion as to the pressing importance of the main issues thus presented, namely, (1) the provision of a complete and universal system of higher education ; (2) effective local co-operation ; (3) suitable and adequate training for all grades of teachers.

* * * * *

It is impossible to refer here in detail to the remarks of individual speakers, but the following, it seems to us, were, in brief, the chief suggestions which were made at the Conference and which need to be impressed upon the attention of all Local Authorities, since they indicate what those public bodies should, on the one hand, seek to secure, and, on the other hand, strive to avoid in the future organisation of higher education :—

(1) That secondary education must, at all costs, be kept apart, as in the past, from sectarian controversies, and that “ freedom, variety and elasticity ” are essential ;

(2) That an immediate and paramount duty is the provision of efficient non-specialised public secondary schools, suitable, both in number and type, to the needs of the respective localities ;

(3) That steps should be taken to effectively utilise existing endowments in connection with elementary as well as secondary schools ;

(4) That evening continuation schools should be universally established ;

(5) That, in secondary schools of all kinds as well as in evening continuation schools the different divisions of school studies (*e.g.*, science, literature) should be more equalised ;

(6) That all efficient private schools, and existing schools that can be made such, should be incorporated in the educational system of the country, being placed under proper inspection but not receiving *direct* aid from public funds, and that scholarships from the primary schools might be made tenable at private schools recognised as efficient ;

(7) That contiguous Local Authorities should co-operate in the award of different classes of scholarships and exhibitions,

which should be suitable to the ages, and to the pecuniary and other circumstances, of the candidates ;

(8) That an extended supply of scholarships from the public schools to the universities should be provided for girls ;

(9) That the work of technical institutions should be correlated so as to secure especially that the highest form of technical training will be allotted to a limited number of central technical institutions, and not be made a part of the aim of every institution ;

(10) That the greatly-increased and improved facilities needed for the training of teachers should be supplied by means of the establishment of a few new central training colleges by the combined action of the Local Authorities within the district to be served, or by the Central Authority, or by utilising or developing existing institutions of various kinds, the colleges or departments to be closely affiliated to the universities or university colleges, and that adequate scholarship provision should be made to cover a post-graduate course of study.

* * * * *

The constitution of Education Committees—the first duty of Local Authorities under the Education Act, 1902—is proceeding apace in all parts of the country. A statement upon the matter, giving a list of the schemes approved up to the 31st March last, by the Board of Education, has recently been issued as a Parliamentary Paper (Cd. 1564). While it is mentioned what forms of educational experience are to be represented on the respective Education Committees, the Return does not show at all completely the actual extent of representation granted. But the following summary of the available statistics will bring out clearly two important points relating to the constitution of the Education Committees of the various types of Local Education Authorities exercising powers under the Act, namely, (1) the proportion of municipal members and (2) the extent to which women have been included :—

Local Education Authorities.				Education Committees.			
		Number of Members.	Number of Members.	Councillors.	Non- Councillors.	Women.	
13 Counties..	1,009	542	374	168 including	28	
16 County Boroughs	..	993	515	318	197	..	29
17 Boroughs over 10,000 population	}	480	341	219	122	..	26
2 Urban Districts over 20,000 population	}	36	27	17	10	..	3

In Section II. of our present number (pp. 192-204) will be found a selection of the schemes, for the formation of Education Committees, typical of those drawn up by each Local Education Authority of the character indicated in our summary given above. Further, the agreement for co-operation between the Surrey County Council and the borough of Richmond deserves particular attention: by it the County Authority delegate to the Borough Authority the local management of educational work which falls within Part II. of the Act and will make adequate money grants accordingly.

* * * * *

Now that the Technical Education Committees of County and County Borough Councils, who have occupied the domain of higher education during the past twelve or thirteen years in administering the late Technical Instruction Acts, are gradually being absorbed by the new Education Committees, it is fitting to notice the results which have proceeded from their action during that period. Several of the Committees have already issued very interesting statements of this character, and we are glad to be able to review a few of them on pp. 256-64. If Local Authorities generally could be induced to publish similar statements of their procedure, such a comprehensive compendium might be made as could not fail to prove extremely valuable at this epoch-making period of our educational development. Some of the results recorded are certainly most remarkable, not only in regard to their scope but also concerning their rapidity, and, singularly enough, they have very often occurred in a sphere in which the powers of the Local Authorities were somewhat limited, namely, that of secondary education. It is only necessary to mention one or two facts by way of illustration. In several localities, *e.g.*, Durham, Hampshire, Surrey and Wiltshire, the attendance of pupils at the public secondary schools has been almost, or more than, doubled through the scholarships and grants offered by the County Councils; many new schools organised on modern lines have been established; facilities for giving practical technical instruction, where none existed previously, have been provided on a scale suitable to the needs of the whole area; while the curricula and the teaching staffs of the schools have, in many cases, been entirely remodelled. It is thus quite evident that Local Authorities have not fallen into the error of subordinating the very important claims of secondary education to those many imperative duties committed to their care under the Technical Instruction Acts.

A useful survey of the whole of the educational system of Ireland is embodied in a special article, published on pp. 207-32, by Mr. F. C. Forth, Principal of Belfast Municipal Technical Institute and late Assistant Director of the Manchester Municipal School of Technology. This survey embraces not only particulars concerning the manner in which the various forms of instruction are being promoted but also some of the results achieved and the directions where improvements are needed; in addition, there is included a brief history of each public department in Ireland dealing with education. In his article, Mr. Forth, of course, touches upon university education and recapitulates (on pp. 219-23) the recommendations of the Royal Commission who have recently reported upon the question. The Commission have made some very important suggestions in regard to the subjects of higher technical education and co-ordination, and to these we shall refer in our next number. Appropriately enough, Mr. Forth deals more minutely with the question of technical instruction in Belfast, where the largest urban scheme in Ireland is being brought into operation under his personal supervision: its importance to the country generally may be inferred from the figures given (on p. 208) respecting the fluctuations in the population in that city and throughout Ireland during the last six decades. We hope to be able to chronicle later on the progress made in the organisation of new schemes in the other Irish county boroughs.

* * * * *

In our last issue we referred to the rapid progress made recently in the promotion of technical instruction in the secondary schools of Ireland as the result of the issue, by the Irish Department of Agriculture and Technical Instruction, of the Programme of Experimental Science, Drawing and Manual Instruction. The Programme, which has been in operation for almost two academic years, was, however, evidently considered to be only a tentative arrangement, since it has been followed by an extended Programme and Regulations which aim at securing more systematised teaching. The lines upon which this teaching is to be conducted were announced to the managers of day secondary schools by the Department in April last. There can be no doubt that the committee, composed of representative heads of the secondary schools, who were wisely appointed by the Department to confer with them upon the particular questions involved, have had a good deal to do with formulating the new rules, which appear to be both liberal and comprehensive. It is possible for us to notice here only

a few of their chief features. The Programme covers four full years, detailed syllabuses for which are given; for the special (third and fourth years) courses, soon to commence, the grants for instruction in drawing and experimental science respectively may be made independently, which is not the case in the earlier years; the efficiency of the instruction will be tested by inspection without notice by means of practical exercises in the laboratory, *viva voce* examination of classes or individuals, or written examinations, or by a combination of these methods; the grants may be increased or reduced by certain definite proportions according to the reports of the inspectors, and where improvement is not effected, after warning, a school may be removed from the list of aided institutions. These and other modifications will take effect after the 31st July, 1903, while stringent regulations in respect of that most important matter of all—the qualification of teachers—will come into operation on the same date in the year 1907.

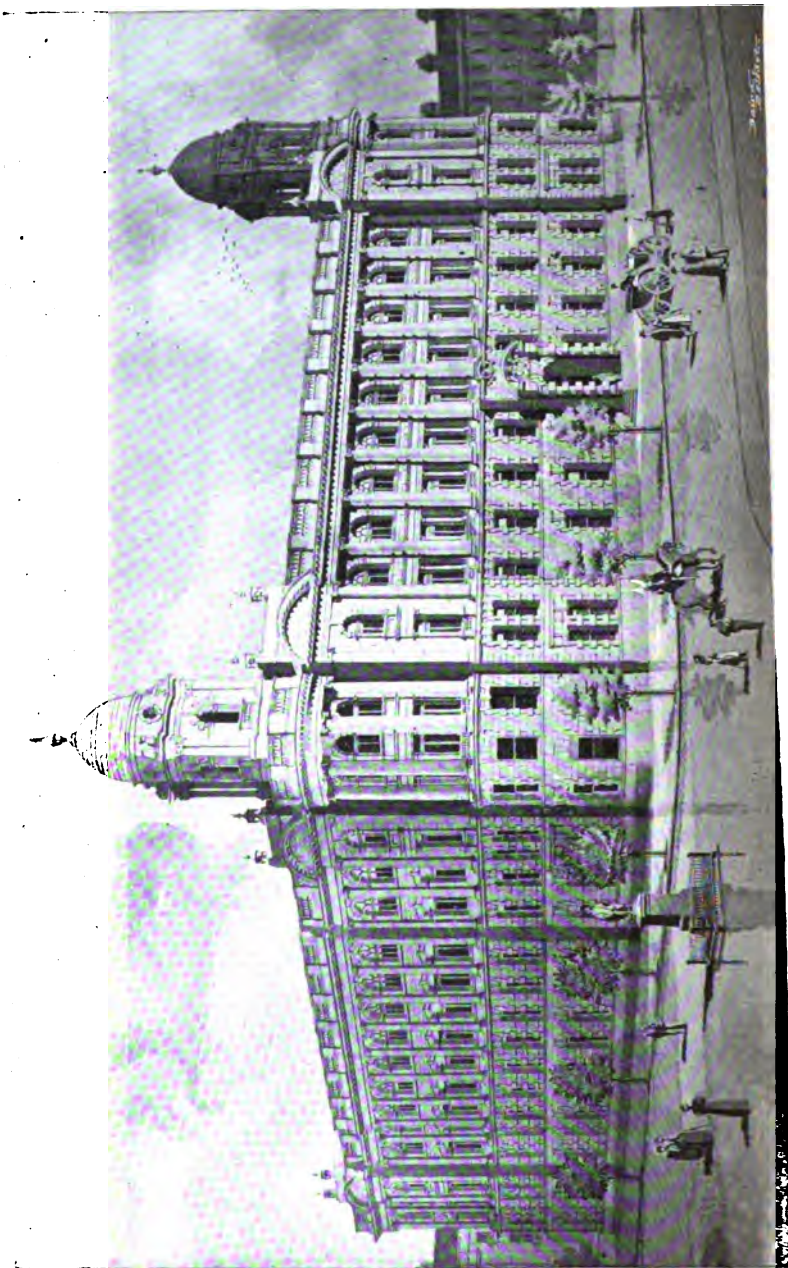
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Up to the time of the appointment, in April, 1902, of a Committee of the Privy Council, we have directed attention in these pages to the various developments that have followed the action of the colleges at Liverpool and Manchester in their endeavour to be converted into independent universities. The decision of the Committee was made known in February last, and was to the effect that separate charters ought to be granted to both the aspiring colleges. By the terms in which the decision was announced, it is quite evident that the Committee are fully alive to the gravity of the position in advocating this proposed departure from the federal principle. They say that, before settling the draft charters, the authorities of the Yorkshire College, Leeds, who, with a number of Local Authorities and other educational bodies interested, are opposed to the disruption, “should have the opportunity of submitting a draft charter incorporating a university in Yorkshire, and that the institutions concerned should be invited to consider in greater detail not only the points upon which joint action is desirable but also the methods by which it can best be secured without unduly restricting the liberty or circumscribing the responsibility that ought to attach to independent universities.” We hope that the whole subject will receive from all parties that careful attention it deserves both on financial as well as on educational grounds.

On pp. 246-9 we publish an outline of the superannuation proposals, for teachers in the county intermediate schools in Wales, which were drawn up by the Central Welsh Board and have since been fully discussed by the different County and Local Governing Bodies. The calculations appearing in the scheme were made by Mr. Duncan C. Fraser, Fellow of the Institute of Actuaries and Actuary of the Royal Insurance Company. Owing to the operation of the Education Act, 1902, some of the County Governing Bodies have referred consideration of the proposals to their successors, the new Education Committees. Of the 16 County Governing Bodies, however, nine have expressed their readiness to support the scheme, although it has not yet been put into operation in any county. Before such resolutions can be carried out, it will be necessary for the several Governing Bodies to receive the sanction of the Board of Education to the necessary amendments of their county schemes so as to render it possible to contribute to the pension fund. Meanwhile, at a recent meeting of the Central Welsh Board, the nine County Governing Bodies were recommended to collect the contributions of their teachers as from the commencement of the current financial year and to place these contributions, together with those of the county, on deposit at the bank.

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The Association of Directors and Organising Secretaries for Technical and Secondary Education held their last meeting at Derby Municipal Technical College on Friday, the 3rd April, when 26 members were present. Mr. J. Moore Murray (Warrington) was elected a member. The meeting was occupied with discussions upon matters arising out of the new Education Act, the following being some of the chief points considered:—the interpretation of Section 17 (5), with special reference to financial questions under a joint arrangement; endowments (Circular E. A. 7); appointment of managers; the position of non-county boroughs and urban districts in respect of higher education (Part II.); the grouping of schools; school attendance work; the financing of elementary schools. The members of the Association were entertained at luncheon by the Mayor of Derby (the Hon. Frederick Strutt, J.P.). A number of the members of the Association having already been appointed as the chief officials to administer the Education Act in their respective areas, the future constitution of the Association is now under consideration. We hope to be able to give a complete list of the educational appointments made under the Act in our next issue.



NEW MUNICIPAL TECHNICAL INSTITUTE, BELFAST (NOW IN COURSE OF ERECTION). (See page 225.)

II.—THE ADMINISTRATION OF THE EDUCATION ACT, 1902.

(1) A REPRESENTATIVE CONFERENCE ON HIGHER EDUCATION.*

The Conference on higher education, which was convened by the National Association for the Promotion of Technical and Secondary Education, took place on Tuesday, March 17th, 1903, in the Hall of the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W., the Right Hon. Lord Avebury, F.R.S., presiding.

The following is a list of the persons present, with the Local Authorities and educational bodies represented:—Lord Reay, the Right Hon. James Bryce, M.P., the Right Hon. Henry Hobhouse, M.P., the Right Hon. Sir John E. Gcrst, M.P., Sir R. C. Jebb, M.P., Sir Owen Roberts, the Right Hon. Horace Plunkett, Sir F. S. Powell, Bart., M.P., Colonel Robert Williams, M.P., Mr. Thomas Burt, M.P., Sir W. E. M. Tomlinson, Bart., M.P., Mr. J. T. Middlemore, M.P., Mr. Evelyn Cecil, M.P., Sir Henry Craik, Sir E. H. Carbutt, Bart., Sir John Cockburn, Dr. William Garnett, Mr. J. Martin White, Mr. George N. Hooper, Mr. J. C. Medd, Professor Robert Wallace, Dr. C. W. Kimmins, Mr. Sidney H. Wells, Mr. A. J. Mundella, Mr. Gilbert R. Redgrave, Mr. J. S. Thornton, Mr. W. Scott Coward, Mr. C. D. Chambers, Mr. Wilfred Mark Webb, Mr. H. F. Pooley, and Mr. F. Oldman (Secretary).

County Councils.—Mr. W. W. Marks (Bedfordshire) ; Messrs. A. K. Loyd, M.P., E. D. Mansfield and G. J. Hill (Berkshire) ; Messrs. Frederick W. Verney, A. Lasenby Liberty and C. G. Watkins (Buckinghamshire) ; Messrs. E. O. Fordham and Austin Keen (Cambridgeshire) ; Mr. Evan W. Small (Derbyshire) ; Mr. B. R. Swift (Dorset) ; Messrs. E. N. Buxton and J. H. Burrows (Essex) ; Messrs. W. E. Darwin and D. T. Cowan (Hampshire) ; Mr. John Wiltshire (Herefordshire) ; Messrs. J. C. Pellman and

* In the Editorial Notes on pp. 164-6 we draw attention to the chief points urged by the several speakers at the Conference.

Francis W. Crook (Kent); Messrs. Benjamin Hurst and A. J. Baker (Leicestershire); Mr. A. J. Shephard (London); Mr. B. S. Gott (Middlesex); Mr. E. Pillow (Norfolk); Mr. J. J. Atkinson (Northamptonshire); Mr. G. Herbert Morrell, M.P. (Oxfordshire); Messrs. J. Bowen Jones and J. Parry Jones (Shropshire); Mr. C. H. Bothamley (Somerset); Mr. A. Ernest Withy (Wiltshire).

County Borough and other Councils.—Councillor Barrow and Mr. C. F. Preston (Barrow); Messrs. M. Fielding and F. Wilkinson (Bolton); Alderman W. Sendall, J.P., and Messrs. Daniel Hack and E. B. Lethbridge (Brighton); Messrs. C. M. Foden, J.P., and A. Steele Sheldon (Burnley); Alderman H. T. Brown (Chester); Principal E. H. Griffiths (Cardiff Corporation and University College); Alderman William Wreford (Exeter); Mr. W. Swinburne (Town Clerk) and Councillors J. Thubron and N. Temperley (Gateshead); Alderman H. Coates (Hanley); Alderman Tuppenney, J.P. (Hastings); Mr. E. Packard (Ipswich); Councillors W. Oulton and J. W. Alsop (Liverpool); Mr. J. H. Reynolds (Manchester); Mr. William King Baker (Middlesbrough); Alderman S. S. Campion and Mr. R. Elliot-Steel (Northampton); Mr. James Middleton (Oldham); Councillor G. W. Edmonds (Portsmouth); Mr. Owen Ridley, J.P. (Reading); Mr. H. Bottomley Knowles (Swindon); Mr. William Wilson (Salford); Mr. C. H. Strange (Tunbridge Wells); Mr. H. C. Powell (Walsall); Mr. Albert E. Briscoe (West Ham); Alderman Price Lewis (Wolverhampton); Alderman Walter Holland (Worcester).

Universities and University Colleges.—Professor C. Lloyd Morgan, F.R.S. (Bristol); Professor J. A. Ewing (Cambridge); Professor N. Bodington (Yorkshire College, Leeds); Professor W. H. Woodward (Liverpool); Professor W. C. Unwin (London University); Professor G. Carey Foster (University College, London); Miss Ethel Hurlbatt and Miss Robertson (Bedford College, London); Principal Alfred Hopkinson (Owens College, Manchester); Principal J. E. Symes (Nottingham); Mr. P. E. Matheson (Oxford); Mr. Francis H. Wright (Reading).

Various Educational Bodies.—Rev. Dr. C. C. Tancock and Rev. Dr. J. Gow (Head Masters' Conference); Rev. R. D. Swallow and Dr. R. P. Scott (Incorporated Association of Head Masters); Mr. A. L. Soper (City and Guilds of London Institute); Mr. E. White Wallis (Sanitary Institute); Messrs. H. L. Humphreys, Henry C. Devine, H. R. Beasley and W. W. Kelland, and Miss E. C. Sumner and Miss A. B. Anderton (Private Schools Association); Mr. T. Wetherell, J.P., and Professor J. Wertheimer (Association of Technical Institutions); Messrs. J. L. Holland

and W. A. Newsome (Assistant Masters' Association); Mr. G. Montagu Harris (County Councils' Association); Messrs. J. H. Nicholas and P. Elford (Association of Directors and Secretaries for Education); Mrs. J. S. Turner (Teachers' Guild); Miss E. A. S. Dawes and Mr. E. A. Butler (College of Preceptors); Miss K. T. Wallas and Miss E. M. Case (Assistant Mistresses' Association); Messrs. J. Trevor Owen and Hammond Robinson (Central Welsh Board); Miss E. Hastings (Incorporated Association of Head Mistresses); Mr. R. Blair (Department of Agriculture and Technical Instruction for Ireland).

Apologies for absence were received from Lord Ripon, K.G., Lord Belper, Sir Henry E. Roscoe, F.R.S., the Right Hon. A. H. D. Acland, Sir C. T. D. Acland, Bart., the Right Hon. Sir William Hart Dyke, Bart., M.P., the Right Hon. Sir John T. Hibbert, K.C.B., Sir William Mather, M.P., the Right Hon. Sir Bernhard Samuelson, Bart., Mr. A. C. Humphreys-Owen, M.P., Sir Henry Peto, Bart., Mr. William Bousfield, Mr. Sydney Buxton, M.P., Mr. E. J. Halsey, Mr. R. E. Pannett, Sir James Hoy (Manchester Corporation), Dr. A. Robertson (Vice-Chancellor, London University), Mr. J. J. Bickersteth (East Riding County Council), Miss Flora C. Stevenson (Chairman, Edinburgh School Board), etc.

THE MORNING SESSION.

(11-30 to 1-30.)

The Chairman's Address.

Lord Avebury, in the course of an introductory address, observed that they were much indebted to the Association for what they had done in the past as regards the higher education of the country, and he knew he was reflecting the feelings of the Chambers of Commerce of this country in saying this, as they were especially grateful for what they had accomplished. They all rejoiced to feel that in the matter of education great strides had been made of late, and probably most of them believed that, among the great discoveries of the last century, the improvement of the education of the country was certainly one of the greatest, if not the greatest. But at the same time, while so much had been done, there still remained much to be accomplished. They had last session what was called an educational session, and they heard a great deal about the relative merits of board schools and voluntary schools, of the claims of Church and Dissent, of rates and buildings, and whether, when and by whom education was to be controlled and who was to pay for it.

But they had heard scarcely anything at all as to what that education should be. If they looked to the higher schools they found 20 or 30 hours a week devoted to Latin and Greek (which, moreover, their sons were not taught to speak) and four or five hours were given to mathematics, while only two to modern languages, astronomy, physics, chemistry, electricity, mechanics, zoology and botany. Surely that was a very unsatisfactory distribution of the time. No one would undervalue the classics, but they claimed for science that it should also have a fair share of attention; and any education which gave so little time to science and modern languages was a one-sided education. The greatest classical scholar, if he knew nothing of science, was but a half-educated man after all. Their Association was one for the promotion of technical and secondary education, and at the time it was started the subject was very much in the background. Thanks to the Association, and especially to the Duke of Devonshire and Sir Henry Roscoe, they had certainly done a great deal in the years they had been in existence; and he should like to thank certain members of the Association, and particularly Sir William Mather and Mr. Henry Hobhouse, for what they did during the passage of the Bill through Parliament last year, in order to make it imperative for Local Authorities to have regard to the needs of higher education, including the training of teachers; to apply the whole of the Residue Grant to educational purposes; and to promote the general co-ordination of all forms of education. He was not himself, in the first instance, in favour of the compulsory allocation of the whole of the Beer and Spirit Duties to education. He thought some time was required to study the question, and consider how the money could best be utilised. Now, however, the time had come, and the experience they had gained justified their devoting the whole of this money to educational purposes. They had heard it asked sometimes—what was the advantage of having all these technical institutions? Well, he thought that some of the consular reports furnished a very striking answer to that question. They heard a great deal about things being made in Germany. He had never quite agreed with the scare about the injury Germany might do to our manufactures, but certainly, although he took a hopeful view, he had always felt that we should strain every nerve to keep the lead we had secured. Let them see whether they could in any way realise what technical instruction had done for Germany. In the case of sugar the Strontium process seemed to be a great improvement, and no less than 90 per cent. of the sugar produced was now obtained by

it. Among artificial sweetening substances he might refer to saccharine. Liebig's discovery—as it might fairly be called—of superphosphate of lime in 1840 had created a great industry. In 1867 the production was 1,000 tons; in 1899 it was no less than 750,000 tons. Another result was the application of the ground slag of the Thomas Gilchrist steel process to manurial purposes. As regarded colouring matter, aniline was discovered by Runze; and Mansfield, working in Hoffmann's laboratory, devised a process by which benzol could be produced from coal-tar on a large scale, thus rendering the production of aniline a commercial success. The artificial alizarine colour had practically replaced madder. In 1870, France produced 25,000 tons of madder, which gradually fell to a few hundreds, and now even the trousers of the French troops were dyed with artificial red “made in Germany.” The value of the organic dyes made in Germany in 1898 was no less than £6,000,000. The German dyeworks employed about 20,000 men, over 500 academically trained chemists, had several millions of capital and were very profitable. Taken altogether, these chemical industries reached a value of over £50,000,000, and if time had permitted, he could have added the results of the discoveries in electricity, metallurgy and other sciences. It was evident that technical instruction in Germany had been a remunerative investment—in the first instance, a great national advantage, but a boon also to the world as a whole. Surely with the present position of England we might fairly hope to see very great improvements in the future. Until comparatively recent years, education had been open only to a few, but all now could have learning and education; and this would, he believed, not only confer great material benefits on the country but do much to maintain the prosperity, the wisdom and the character of our people. He would now call upon Mr. Bryce to move the first resolution.

Facilities for Higher Education.

The Right Hon. James Bryce, M.P., moved :—

“ That this Conference of representatives of Local Authorities and educational bodies recognise the great importance of suitable, adequate and systematic provision being everywhere made for the supply of facilities for higher education by means of continuation schools, secondary schools, technical institutes and classes, and by access to the universities, such facilities to include a sufficient number of scholarships and exhibitions.”*

* See also the rider on p. 184.

Mr. Bryce observed that they were met there that morning because they recognised that at that moment there lay before the country a great opportunity, and that this opportunity was in some danger of being lost. Why was it in danger of being lost for the purposes of technical and secondary education? Because the new Authorities into whose hands these matters had been entrusted had got not only technical and secondary education to undertake but now also the enormous and difficult task of dealing with elementary education as well. There was also a second danger, which he hoped they might escape, but whose presence ought to be realised: that the sectarian controversies which had injured elementary schools might lay their blighting finger upon secondary education. As these sectarian troubles were still rife, and as the new Authorities were likely to be chiefly occupied with the elementary part of their work, it was, therefore, the duty of everyone present to impress on the people, as far as he or she could, and in the first instance on the Local Authorities, the supreme importance of not forgetting the necessity for securing secondary schools sufficiently numerous and efficient. The resolution asked them to declare that they recognise the great importance of suitable, adequate and systematic provision being everywhere made for the supply of facilities for higher education. What did they mean by that? He would try to put it to them in short terms. When they asked for "suitable and adequate provision," they desired three things. First, that there should be schools giving sound literary and scientific instruction to all boys and girls whose parents could afford to keep them at school until they were 16 years of age. They desired, secondly, that there should be ample provision, by means of scholarships or exhibitions from elementary schools to secondary schools, for all boys and girls of superior intelligence and industry. Thirdly, that there should be adequate continuation schools which would carry on those boys and girls who had left the elementary school at 13 or 14, but whose abilities had not been sufficient to enable them to earn scholarships. Then, when they talked of "systematic provision," they meant that there should be in every town—and especially in the newer towns, which were less well-endowed—a public secondary school of a first or second grade, according to the size of the town, the excellence of which was guaranteed by its being under public management. He did not mean that they should try to expunge the private schools, which were also useful and should remain; but the parents ought everywhere to be able to count on having public provision made of the kind of instruction needed. Let him endeavour to put it in this way. They ought to

have in every town of 5,000 people, or upwards, what they might call a grammar school, providing a good plain secondary education, including Latin and the elements of scientific and technical instruction. In towns with populations of 40,000 and upwards there ought to be a school competent to prepare for the universities; in towns of 100,000 people there should also be a completely equipped technical institute, which should fit a boy for any of the scientific professions; while in every town with a population of 200,000 and upwards there should be a university college in which was imparted instruction of a university character. In the rural districts, where the problem was no doubt more difficult, what they wanted was to establish in each rural area a central school in the nearest small town, to which there should be exhibitions from the rural elementary schools, and where there was no town in the immediate vicinity there should be provided what might be called a secondary top to a certain number of the larger elementary schools, selecting for this purpose those which were centrally placed, with good railway access. This plan of having a secondary department superimposed on an elementary school had, in some parts of Scotland, turned out to work extremely well. They might ask where were the necessary funds to be found, but there was one source of revenue which they had not yet exhausted. He referred to the large number of endowments which were not properly used for educational purposes, and he regretted that more had not been done to turn these to account. These endowments under the new Act might be brought under the control of the new Authorities, and there were many in various parts of England which might be utilised in order to improve the elementary schools and provide for the children of the poor, giving them a chance to rise. This was the purpose for which these funds were intended, and the funds might do much if only they were applied in the proper way. As to the kind of instruction they ought to endeavour to provide, it should not be of any one kind only, but duly recognise the various capacities and needs of the children. Now, of late years there had been a marked swing and tendency towards the development of one kind of education and the neglect of another. He was going to say what might, perhaps, surprise some of them, but, if he succeeded in explaining what he meant, he did not think they would differ. The tendency of recent years had been to give a prominence to scientific subjects, which were almost squeezing out the literary or "human" subjects. Science had been neglected in the past, and the consequence had been that nearly all the progress that was now being made was in the

direction of giving more and more scientific instruction. He did not desire that the scientific subjects should be reduced—far from it—but that the literary subjects should not be forgotten. Such branches of instruction as languages, ancient and modern, history and geography, the elements of economics and not least, the art of composition, should have due attention secured for them. The latter was little taught, and seldom effectively, in England. The subjects he had enumerated were all of a nature that should find their place with the scientific subjects, and he was sure that if that were carried out science teaching would not suffer, but would gain, because many children received a far livelier stimulus to mental activity from the literary branches of instruction. We in England were at this moment in a very critical position, but it was not so much ignorance that they had to fear as indifference—the indifference of nearly the whole English community in the matter of education. The boys were indifferent because their minds were bent on sport, and the parents were too much engaged in their own businesses, and, when they talked to the boys about school, talked also about the sports. The ratepayer, whether a parent or not, was also indifferent, and, when he had paid his school rate, thought no more about the matter. This apathy of all classes was the real evil to be faced and overcome by those who desired to see some advance made. Commencing with the Local Authorities, what they had to do was to permeate the whole community with a sense of the value and practical utility of education, teaching both parents and ratepayers to know what it meant and to understand how great is its worth to the nation.

The Right Hon. Henry Hobhouse, M.P., seconded the resolution. He said that he considered that the Executive of the National Association were well advised in calling the Conference at the earliest practicable date. There was no little danger that the interests of higher education would be overlooked amid the more exciting controversies connected with the new organisation of elementary education, and that its development might be starved at a time when new and heavy burdens were being imposed on both ratepayers and taxpayers. In spite of the improvement effected last year in Part II. of the Bill during its passage through Committee, the provision of secondary education by Local Authorities was still to a large extent optional. It was true that the County Councils must, in the words of the Act, “consider the educational needs of their area, and take such steps as seem to them desirable, after consultation with the Board of Education, to supply” such

education. The fact that they had to consult with the Board of Education would, no doubt, ensure some systematic action, but they must hope that the Board would not attempt to interfere with them unduly, or to force them into uniform grooves of work. What was wanted was not the issue of circulars, however numerous and suggestive, but personal interviews between the Education Committees and a first-rate experienced official of the Board, who could give them the best advice, point out the deficiencies of their schemes and suggest new lines of work. It was further obligatory on the Local Authorities, under sub-section two of Part II. of the Act, to have regard to the existing supplies of efficient schools and the steps already taken under the Technical Instruction Acts. That provision ought to allay the apprehensions of technical institutes that feared their interests might be overlooked, and those of private schools that feared undue competition. Such schools could hardly expect direct aid by grants from the Local Authorities, but might be aided indirectly by the tenure of scholarships, and possibly by the use of laboratories and apparatus provided by the public. But in no case ought a school to be aided which had not been inspected and reported on as efficient by the Government inspectors, and perhaps also by the county officials. Undue competition with existing schools was very unlikely to occur from another point of view. County Councils that were face to face with an additional rate of (say) at least fourpence for elementary education were not very likely to ask the ratepayers to find funds for unnecessary institutions of a higher order. The Local Taxation Residue was already pledged up to the hilt in most counties, and it was to be feared that that amount was likely to diminish rather than to increase in future years, owing to causes which they should not all of them deplore. The only other source of income at the disposal of the Local Authorities besides the rates would be the Government grants for art, and what used to be science grants, but were now called, more properly, grants for secondary day schools. These latter grants, estimated for next year at £163,000, which they hoped might be in future given in a way more calculated to encourage general secondary education, could hardly, at any rate at first, be pooled in the various counties, but must, as a rule, be paid over to the schools which earned them. There were two forms of aid from the rates which might, in certain cases, well be adopted:—(1) special rates might be levied under Section 18 (1a) on a portion of a county which desired to have a new school or

institute established in its district, but such rates, as a rule, should be limited to capital purposes; (2) the present practice, largely prevailing in many counties, of making grants out of the county fund to meet rates levied by urban authorities, might well be extended, on the ground that special local effort deserved recognition and encouragement. The principal methods of supplying higher education were mentioned in the first resolution, excluding, as they must do that morning, the important subject of the training of teachers, which would be dealt with by a subsequent resolution. Evening continuation schools ought, no doubt, in the interests of the economy of educational effort, to be universally provided wherever the population was sufficient. In his own county of Somerset, where they had paid great attention to the subject for eight or nine years past, they had over 150 schools, many of them in small villages, working under County Council regulations. The nett expenditure on those schools last year amounted to about 17 per cent. of the technical instruction funds. They spent about 15 per cent. of the funds on maintenance grants to their public secondary schools, grants hitherto appropriated, in theory at all events, to science and technical subjects. In future the literary side of those schools must have equal attention with the scientific, and they must see that their system of grants was consistent with the preservation of different types of curricula. The special difficulties of small schools in country districts might, it was hoped, in future be largely met by peripatetic instruction, by paying the travelling expenses of the children who were distant from the school, under Section 23 (1) of the new Act, and possibly also by the formation of upper departments attached to elementary schools which had a superior class of teacher. Closely connected with the secondary schools was a proper system of scholarships, an object on which they spent another 15 per cent. of their income. There should be at least three or four different types of these, adapted to boys and girls of different ages, and taking them at the proper age to the appropriate institution. He had no time to deal with the principles of aid to technological work or to university colleges. But before he concluded he should like to say one word on the organisation of the staff. It was essential that every Local Authority should have at their command a really competent officer devoting his whole time to education. In his case a good salary would be a real economy. He hoped that at first, at all events, there would be caution in appointing county inspectors; some, no doubt, they must have, but their number should not be unduly multiplied. They should take every advantage of the facilities now offered

them by the Board of Education to place at their disposal the result of the Board's own inspection. Finally, might he urge those Councillors who were present not to leave the guidance of the work entirely or mainly to paid officials? Such a great task as they had now before them should evoke a corresponding amount of public spirit.

The discussion was continued by Dr. R. P. Scott (Head Masters' Association), Mr. Frederick Verney (Bucks. County Council), who proposed a rider to the resolution (see p. 184), Professor J. Wertheimer (Association of Technical Institutions), Miss Wallas (Association of Assistant Mistresses in Public Secondary Schools), Professor J. A. Ewing (Cambridge University), who seconded the rider, Sir Edward H. Carbutt, Bart., Mr. J. H. Reynolds (Principal of the Municipal School of Technology, Manchester), Dr. William Garnett (London Technical Education Board), Mr. J. S. Thornton and the Right Hon. Sir John E. Gorst, M.P. (late Vice-President of the Committee of Council on Education).

Sir John Gorst thought that, although the last speaker had shown the great leeway that was to be made up, the speech of the gentleman from Manchester would send them away comparatively confident that the new Local Authorities would address themselves to the new problems of technical and secondary education. They must remember that in all the great towns the new Local Authority would inherit not only excellent elementary schools, but also a large number of evening continuation schools, higher grade schools (which had really been giving secondary education) and technical schools. The question was more difficult in the counties; but there were few counties in the country which had not established some kind of technical or secondary schools, or considered the great question of evening schools. That made it certain that they would not overlook their present duties. Another danger to education was the indifference that was said to be displayed. Mr. Hobhouse had said that there was a great deal of that. He would rather say that there had been indifference; but there was none now, because the new Act had stirred up the question in every county in England and Wales; so that he did not think there was much indifference now. What he thought was the greatest danger was that of possible over-centralisation. The new Act of Parliament put very great limits on the powers of Local Authorities, but happily these really applied more to elementary than to secondary education. At the same time, as a great part of the funds which the Local Authorities would receive would come through the Board of Education from the Exchequer, he hoped that the very

great power which the distribution of these funds gave to the Board of Education would be so exercised as not to prevent a free hand being given to Local Authorities to try the kind of education which they thought would be most suitable to the districts over which they had control. Education in the schools should not be on one rigid system, but applicable to the particular characteristics of various localities and the particular surroundings and wants of the children of the people who inhabited those places. It would be a misfortune if our education became what it was in France—a uniform system, rigidly applied to the whole country, whether it was suitable or not. He asked them to take care and preserve the independence and variety which was so valuable an element of secondary and technical education.

The Chairman said he sincerely trusted that Local Authorities would give private schools free play. Then, with respect to Professor Ewing's remarks as to "smattering of science," of course there was all the difference in the world between a smattering of knowledge and a sound teaching of science. What was desirable was that the children should obtain a good grasp of the fundamental principles of science.

On being put to the vote, the resolution with the rider (namely, "and, where sufficient funds are available, to include also "provision for post-graduate study and original research") was then unanimously adopted, and the Conference adjourned for luncheon.

THE AFTERNOON SESSION.

(2-30 to 4-30.)

Co-operation.

On the resumption of the proceedings an hour later, Sir Francis S. Powell, Bart., M.P., moved :—

"That every effort should be made to secure proper co-operation "between Local Authorities and educational bodies in promoting "higher, including university, education."

He felt the great necessity of directing public attention to the supreme importance of higher, including university, education. If there was a highly-cultured class in a free country, that culture must extend to every member of the social community. On the other hand, with an ignorant class, the evil influence must pervade the higher ranks of society. But it was always found that culture was a benefit to all classes and ignorance was an evil to

every member of the community. Therefore, in advocating higher education, they were promoting the interests of the artisan class as much as those who were occupying a more privileged position. That which he desired to see done in education generally was to bring all classes together and make them feel that they had interests in common. As regarded educational interests, he felt that the time had come when all who guarded those interests should know each other better, understand each other more accurately and sympathise with each other with more warmth and educational sympathy. It had been rather a habit than a system which had led to isolation in their educational institutions. The schools and colleges of various kinds which had spread all over the country had been the result of accidental circumstances, and many of them would never have been seen save for the energy of enterprising persons, to whom the community owed a deep obligation. They found in some districts huge gaps and voids, which must grieve the mind of every educational explorer. In others they found there had been brought into existence a superabundance of institutions, which competed with one another and injured the cause of education, which they were intended to promote. He hoped the result of the passing of the recent Act would be to end that state of things, and that the whole field of education would be more carefully surveyed, and that the arrangements made would promote the cause of education which they all desired to serve. There was one danger against which the resolution was directed, and that was the insufficient regard for the demands of private schools. It would be a great loss to education if the private schools were either to disappear or to be weakened. Mr. Bryce's Secondary Education Commission had spoken in terms of high commendation of the work done by the private schools. They had the disadvantage of not having the benefit of public funds, but they had certain advantages of their own. There was a greater elasticity in private than in public schools, which were more and more governed by written rules. They could often try wise and prudent experiments, which frequently led to great improvements in their educational system; and he was perfectly sure it would be a disaster if the intelligence, the activity and the power of those who conducted private schools ceased to exist. The Act especially provided that the authorities were to have regard to existing institutions. He wished that those words had been more ample, but believed that they were quite sufficient, and they were intended to protect private schools, to secure them from being treated with asperity, or with hardship, to prevent their injury, extinction and disappearance. He sincerely

hoped then, that those who were members of Local Authorities would never forget what the nation had owed in the past to private schools, what it still owed now and would owe in the future. Some reference had been made to university colleges, and that brought him to the second branch of his subject. He would call attention to the great importance of affiliating one institution to another. There was a tendency everywhere to endeavour to do everything, with the result that they did much badly. But if there was more co-operation and correlation that deficiency would be overcome and one institution could make use of another. It was impossible that every school should occupy the whole ground; one institution should help another in certain branches of the work, and by doing so they would economise strength and financial resources. He again referred to the private schools, and said he would regard it as a great calamity if they were to be weakened or to disappear. He believed they would form part of their educational system during a great many years. That which he desired to see in coming years was a system of education which was comprehensive, elastic and free. It must be comprehensive, because if it were not there would be additions to those voids to which he had already alluded; elastic and free, because it must meet the continually changing requirements of the population.

Mr. E. North Buxton seconded the motion, and said he should like to say a word in endorsement of what Sir Francis Sharp Powell had said as to private schools. They all felt the value of their services in the past, and possibly realised how valuable would be their services in the future. But, of course, there were private schools and private schools, and he hoped that as many as were able to do so would improve their standards of teaching. His own opinion was that they could not dispense with any existing agencies for higher and secondary education. They were severely handicapped by lack of money, and the Act by which they were to work gave them a paltry twopence in the £. They could not do much with that, but by "squeezing" they might eventually be able to increase it. After looking it over carefully, however, it did seem to him that they could accomplish but little, and perhaps the best they could do was to make the most of the existing high, grammar and endowed schools in our midst, and assist these institutions to get the maximum results out of their existing machinery. He hoped he would not introduce too much "vinegar," but he should like to give vent to "a British grumble" against some parts of the Act of Parliament, which had made it extraordinarily difficult to secure co-operation. It almost appeared as if—he did not mean to

say that it was so—the persons responsible for the framing of the Act had done their best to place barriers in the way of that co-operation; and personally he wished that the idea of one authority in each county had been completely carried out. The management complications were almost insuperable. To take his own county, there they had close to London enormous urban authorities, and, taken together, they constituted a great city of 500,000 inhabitants. They were trusted with their elementary but not with their secondary education, and it seemed to him that the idea of co-ordinating and unifying education had been entirely lost sight of in the case of these urban authorities. As a matter of fact, it was conceivably possible that these urban authorities might come into the county for educational purposes, but it must be remembered that their elementary education rate was already two shillings in the £, and they would recognise what an obstacle that constituted. They would not, therefore, be very welcome visitors, and were not likely to be sought after by the county who had a much lower rate themselves, but he believed that means would be found at an early date to remove these obstacles, and enable all kinds of education within these areas to be unified. Naturally, the best means for secondary education were to be found within the large towns. The technical schools created within the last few years and the secondary schools were mainly within the towns, but they were fed by the wide areas round about, and to a large extent they were dependent upon the rural districts for their pupils. But these remained under the county management, while the large urban districts were separated. There, again, came in the difficulty of the rate, the equalisation of which should have been undertaken by those who framed the Act. It seemed to him that the best solution would be found under a small sub-section buried in the Act of Parliament, by which the County Education Authority might appoint sub-committees—which might be local sub-committees—and as these bodies might be constituted practically just as the County Authority pleased, what he believed they would do would be to appoint the authorities which they found already in existence, and so enable the one Authority to carry out elementary as well as higher education. It appeared to him that it would be a most retrograde move if they were to keep separated the higher and elementary education of these urban authorities; but where there was a will there was a way, and if they were determined to drive a coach and four through the Act of Parliament, as regards this particular matter, and have the same individuals manage the two kinds of education, he believed

things would work very well. He might say, in conclusion, that much as they heard about the difficulty of working the Act and the hostile feelings with which it was regarded, at the same time he did not find in any quarter any spirit or desire to wreck the Act. He thought there was a strong wish to make it work for the best, and he had no doubt that when it came into active operation everyone would co-operate in order to overcome these real difficulties that had been provided for us by our legislators. He hoped that the latter would take to heart these difficulties, and endeavour at the earliest possible moment to remove them.

The discussion having been continued by Principal E. H. Griffiths (University College, Cardiff), Mr. H. R. Beasley (Private Schools' Association), Mr. G. Herbert Morrell, M.P. and County Alderman Burrows (Essex), the resolution was put to the meeting and adopted.

The Training of Teachers.

Sir Richard C. Jebb, M.P., then moved :—

“ That it is urgently necessary, for the improvement of education, “ that further and more suitable means should be provided for “ the training of all grades and classes of teachers.”

Perhaps (said Sir Richard) the first point that claimed notice was the remarkable change in public opinion as regards the training of teachers. It had occurred during the last ten years. It was true that the movement for training teachers was about half-a-century old—dating, he thought, from 1846—and the College of Preceptors had been the pioneer in the matter. Then, in 1894, the Royal Commission on Secondary Education took a great deal of evidence on the subject, the results of which were embodied in their report in 1895. He remembered the singular unanimity of the witnesses on the subject, and, as far as he could recollect, only one gentleman, a public schoolmaster, who was eminently successful as a teacher, expressed himself—and quite frankly—sceptical as to the value of the training of teachers, basing his objections on the ground that the functions of a head-master or assistant-master at the great public schools were largely concerned with the social life of the school. It was curious how long it was believed that anyone was qualified to be a schoolmaster, and he ventured to think that the labours of the Royal Commission on Secondary Education had some share in calling attention to the importance of training. Then they had last year the Order in Council establishing the registration of teachers. That might be regarded as another

turning point. It was true that registration was voluntary, and might continue to be so for some time to come. Nevertheless, there was the great point that training was an absolute essential under the Order in Council, and that the force of public opinion would bring to bear on all people who desired to become teachers such pressure that in future the vast majority of teachers would qualify for the Register, so that it might be expected that training would become general. The Register protected the public, and at the same time protected the teachers from the undue competition of unqualified persons, having the additional merit that, including as it did teachers of every kind, it expressed the unity of the profession. What were the means of training at present available? There were, broadly speaking, three ways of obtaining such a training as qualified for teaching in secondary schools—the course at the university, that which was to be obtained at the residential training colleges, and the qualification might be obtained by passing a period as a student-teacher in a secondary school recognised by the Board of Education. Now that the Education Bill had become an Act, certain obligations were laid on the new Local Authorities in regard to the provision of facilities for the training of teachers. They were required to “take such steps as seem to them desirable, “after consultation with the Board of Education.” But how far were they likely to discharge that obligation? The funds at their disposal for the purposes of education other than elementary would be very limited, and the demands on those funds would be very great. For the Councils of large cities the problem would be comparatively easy, but for the ordinary County Councils having control of the agricultural districts the matter would be more difficult. It had been suggested that county scholarships intended expressly for training might be given to acting teachers, or to senior county scholars who had finished their three years' course at the university college. But in all cases a high standard of general education should be required by the Local Authority from anyone to whom they gave a scholarship. He thought there was one principle that ought to be borne in mind in regard to the whole question of the training of teachers—namely, that the subject was one of national concern, and not merely a local one. There were many agricultural counties in which he was inclined to think that the feeling would be this—they would say :—“Our burdens are already very heavy. How can we fairly “be asked to increase these burdens in order to provide training in “the counties for teachers who, when they have been trained, will “leave us and turn their training to account in other parts of the “country? We fully recognise the national importance of training

"our teachers, but the provision of new facilities on an adequate scale within our county would mean putting on us a responsibility heavier than we ought to be called upon to bear." That would be the feeling that would exist in some parts of the country. On the other hand, it would be admitted that there must be a further provision of training colleges throughout the country and of other facilities for training. The demand in this direction could be met by the establishment in different parts of the country of central training colleges, capable of receiving, say, 200 students—one or more in the North, another, perhaps, in the Midlands and one or more in the South of England. To these the Local Authorities in the district might contribute, proportionate, for instance, to the ratable value of the county, and in return they would have a proportionate share in the advantages of the colleges. The subject was one of most urgent importance to the country from every point of view—educational, industrial and commercial. It was a matter of great difficulty and complexity, and the new Education Authorities would do a patriotic work in helping to solve the problem. In carrying out the work the Authorities might be sure they would receive every possible encouragement from the Board of Education, and that they would have behind them the practical unanimity of intelligent public opinion.

Mr. Scott Coward (His Majesty's Inspector of Training Colleges) seconded the resolution. He advocated the use of existing institutions for the training of teachers. There were institutes all over England, both in the agricultural and in the urban districts. In the first place, all the high schools could be used; then there were the great Froebel and similar institutions, all of which would be highly advantageous, both on economical and educational grounds. They had everything to gain and nothing to lose by co-ordinating all those forces of education. It was quite worthy of the most serious consideration—this question of utilising existing institutions for purposes of secondary training, and, if properly carried out, a great deal of expense could be saved. There was a great need for increasing the means of training elementary teachers. The first point he wished to raise was the entirely insufficient means of training the elementary teachers of the country. There were several thousands of these teachers for whom there were no means whatever of training, and who would have to pass into the ranks of the teachers of the country unequipped altogether for the duty of properly forming the minds, intellects and souls of children who would some day constitute the bulk of the nation. It was not simply a matter of educating the people in the three R's, it was not a matter of imparting to them the elements of knowledge; but it was the

question of forming their lives, of bringing them into intelligent contact with all the different agencies in society; it was to inculcate a clear conception of their duty to the country; in short, to make them good citizens. Therefore, it could not be to the interest of the country to continue the fatal policy of under-officering the schools. They wanted every teacher to be a trained teacher—*i.e.*, they wanted a person who was able to convey information properly, who could see how, by imparting the information, the human mind was kindled into interest, and how, from being a mere machine, it rises to the condition of a thinking being. That was what they should strive for, and unless they succeeded they would have done very little indeed. It was of the greatest importance that the training of teachers should be taken into serious consideration by the new educational bodies. How could they increase the means of training? The highest means of training the elementary teacher from the purely intellectual standpoint which they at present knew was the day training college—*i.e.*, the training colleges connected with a university. But they could not utilise these colleges to a greater extent than they were doing now; therefore, they must not expect much more from the existing day training colleges. He felt that new departures must be made, that the existing residential colleges should be used and temporary training hostels established. And these, together with the existing institutions, would, to a large extent, solve the problem. But some system should be established throughout the country to satisfy the needs of people who were thirsting for some means of improving their education in order to become efficient teachers.

Principal N. Bodington (Yorkshire College, Leeds), the Rev. R. D. Swallow (Head-Masters' Association), Principal the Rev. J. E. Symes (Nottingham University College), Professor A. Hopkinson (Owens College, Manchester), Mr. C. D. Chambers, Miss Case (Association of Assistant Mistresses in Public Secondary Schools) and Mr. H. Leonard Humphreys (Private Schools' Association) continued the discussion, which was brought to a close by the unanimous adoption of the resolution.

Conclusion of Proceedings.

On the motion of Mr. W. E. Darwin, seconded by The Right Hon. Henry Hobhouse, M.P., a vote of thanks was passed to the Institution of Mechanical Engineers for the use of the Hall and to the Chairman for presiding. Acknowledgments were made by Mr. Edgar Worthington (the Secretary of the Institution) and by Lord Avebury respectively, and the proceedings terminated.

(2) A SELECTION OF THE SCHEMES OF VARIOUS LOCAL AUTHORITIES.

(i.) CONSTITUTION OF EDUCATION COMMITTEES.

COUNTY COUNCILS.

(a) CUMBERLAND.*

1. The County Council shall establish one Education Committee for the whole county of Cumberland.

2. The Education Committee shall consist of 37 members, subject to the provisions of clause 12 of this scheme.

3. The chairman and vice-chairman of the Council shall be *ex-officio* members of the Committee.

4. In addition to the chairman and vice-chairman, the Council shall appoint from their own body 28 members of the Committee, who shall be appointed so as to secure the adequate representation of (a) all parts of the county, and (b) the interests of the various kinds of schools.

5. There shall also be seven persons appointed by the Council from outside their own body, being (a) persons of experience in education, or (b) acquainted with the needs of the various kinds of schools within the county, of whom at least two shall be women.

6. In making appointments under the above clauses 4 and 5 care shall be taken that university education, the secondary education of boys and girls in its higher and lower grades, technical instruction and commercial and industrial education, having special regard to the industries of the county, the training of teachers, elementary education in Council and voluntary schools, shall always be represented among either the members appointed from the Council or among members appointed from outside the Council.

7. The members of the first Education Committee appointed under the scheme shall hold office until the next day of retirement of the members of the County Council, and thereafter the term of office shall be three years co-terminous with that of the County Councillors for the County; provided that the members of the Education Committee and sub-committees shall continue in office until their successors are appointed.

*This scheme was approved by the Board of Education on the 31st March, 1903.

8. (1) A casual vacancy in the Education Committee shall be reported by the Committee to the next meeting of the County Council, who shall thereupon fill up the vacancy.

(2) A member appointed to fill a casual vacancy shall hold office until the time when the member in whose place he is appointed would have gone out of office, and he shall then go out of office.

9. The vice-chairman of the Council shall be *ex-officio* chairman of the Committee. The Committee may appoint a vice-chairman or vice-chairmen, as they see fit.

10. A member of the Education Committee may at any time by writing, signed and delivered to the clerk or secretary to the Committee, resign his office. Such resignation shall create a casual vacancy.

11. If a member of the Education Committee is continuously absent from meetings of the Committee and sub-committees for six months, or, if having been appointed from the County Council he ceases to be a member of the Council, he shall thereupon cease to be a member of the Education Committee and of its sub-committees, and a casual vacancy shall be deemed to have occurred.

12. If at any time hereafter a borough or urban district which is an Authority for Part III. only of the Act desires to relinquish its powers in pursuance of Section 20 (b), the County Council may provide for an additional representative or representatives of such Authority being placed upon the Education Committee, and the total number of members of the Committee may be enlarged accordingly.

13. The Committee shall, in pursuance of the powers given in the first Schedule of the Act, appoint the following standing sub-committees:—(1) elementary education, (2) secondary education, (3) technical education, (4) agriculture, (5) finance.

The chairman of the Council and the chairman and vice-chairman (if any) of the Committee shall be *ex-officio* members of all sub-committees.

(b) LINCOLNSHIRE (KESTEVEN).*

1. There shall, as soon as may be after the date of the approval by the Board of Education of this scheme, be constituted for all grades of education, a Committee which shall be called the Kesteven County Education Committee, consisting of at least 22, and not more than 24, members, including persons of experience in education and persons acquainted with the needs of the various kinds of schools in the county.

* This scheme was approved by the Board of Education on the 5th April, 1903.

2. The Education Committee shall be appointed as follows:—(a) 16 by the County Council from its own members: (b) six persons, not being members of the County Council, appointed by the County Council as follows:—*one* representing higher education, *one* having experience in the administration of secondary schools, *two* having experience in the administration of elementary schools, both Council and voluntary schools being represented, *two* women chosen as far as possible by the Council as having experience and interest in the education of girls: (c) two by the Grantham Town Council, being an Education Authority for the purpose of Part III. of the Education Act, 1902, provided the Town Council determines to combine with the County Council for all purposes of the Act. The interests of agricultural and other forms of technical education and of higher education generally and of the training of teachers shall always be represented, either among the members appointed from the Council or among members appointed from outside the Council.

3. The Council members of the first Education Committee shall hold office until the end of the term of the present County Council, and thereafter such members shall be elected for periods of three years.

4. The co-opted members of the first Education Committee shall hold office until the end of the term of the present Council, and thereafter such members shall be elected for periods of three years.

5. Members appointed to fill casual vacancies shall be appointed only for the remainder of the term of office of the outgoing member and subject to the same provisions as regulated the appointment of that member.

6. Any member who is incapacitated from acting, or who communicates in writing to the Committee a wish to resign, or who is absent from all meetings of the Committee during a period of six months (except for some reason approved by the Committee), or who being, when appointed, a member of the Council, ceases to be a member of the Council, shall thereupon cease to be a member of the Committee.

(c) **SURREY.***

1. There shall, as soon as may be after the date of the approval by the Board of Education of this scheme, be constituted for the advancement of all grades of education for the inhabitants of the administrative county of Surrey a Committee, which shall be

* This scheme was approved by the Board of Education on the 26th March, 1903.

called the Surrey Education Committee, consisting of not less than 27 nor more than 37 members, not less than 20 of whom shall be called representative members and not more than seven selected members, provided that amongst the members of the Committee there shall always be persons acquainted with the needs of, and experienced in, all types of education and grades of schools in the area, including the following:—university education, agricultural education, technological education, first grade secondary schools, second grade secondary schools, evening schools, girls' higher education, girls' lower education, Council elementary schools, voluntary elementary schools, and, if the representation of such types of education at any time is not secured by the members appointed under Section 2 (a), it shall be secured by means of the members selected under Section 5, and, if it appears desirable to the Council, after consultation with persons or bodies representative of the type of education concerned.

2. The representative members shall be appointed:—(a) by the County Council from its own members; (b) two by each of such of the five Councils in the county being Education Authorities for the purpose of Part III. of the Education Act, 1902, as agree to combine with the County Council in the constitution of a Joint Committee for all purposes of the Act.

3. The first selected members shall be:—(1) a representative to be elected by the senate of the University of London, (2) Miss Penrose (Principal, Royal Holloway College), (3) Mrs. George Unwin (Woking School Board), (4) the Rev. Dr. Rendall (Head-master of Charterhouse School), (5) Sir Henry E. Roscoe, (6) Sir Philip Magnus, (7) A. W. Chapman, Esq. (late chairman of the Farnham School Board).

4. Every appointment of a representative member shall be made at a meeting held in accordance with the ordinary practice of the electing body, and all representative members so appointed, if they are members of the electing body, shall cease to be members of the Committee if they cease to be members of the electing body, and are not forthwith re-appointed to be members of such body.

5. After the appointment of the first Committee, every appointment of a selected member shall be made by the County Council on the recommendation of the Education Committee and shall be for three years, provided always that no person engaged as a teacher in Surrey in any institution in receipt of annual maintenance grants from the County Council under the Act of 1902 be eligible to be a selected member, and that no person be disqualified from being a selected member by reason of his

becoming a member of the County Council, provided also that the first election of selected members shall be for the period expiring on the 8th of March, 1906.

6. (a) Representative members of the Committee (2a) appointed by the County Council, other than *ex-officio* members, shall hold office for three years subject to the provisos in clauses 4 and 8, and one-third (as nearly as may be) of such members shall go out of office on the 8th day of March in each year, but every member so retiring shall be eligible for re-election, provided that the first election of representative members shall be for the period expiring on the 8th of March, 1906. (b) Any member of the Committee may resign his membership by a notice in writing addressed to the Secretary of the Committee, who shall forthwith give notice thereof to the body by whom such member was elected or appointed.

7. Casual vacancies shall only be filled for the remainder of the term for which the vacating member was appointed to serve.

8. The County Council shall determine the order of retirement of the first representative members appointed by it, provided that no such retirement shall take place before the 8th March, 1904.

9. Representative members appointed by the Councils in the county being Education Authorities for the purpose of Part III. of the Education Act, 1902, shall hold office for one or three years, as may be decided by the appointing Authority.

A COUNTY BOROUGH.

LIVERPOOL.*

1. The Committee shall be a Committee of the City Council of Liverpool, and shall be called the Education Committee.

2. The Education Committee (hereinafter called the Committee) shall consist of 52 members, and shall be constituted as follows :— 34 members shall be appointed by the City Council from amongst the members of that body, and 18 members, at least three of whom shall be women, shall be appointed by the City Council as hereinafter provided. The Committee shall include, in addition to persons experienced in education and persons acquainted with the needs of the various kinds of schools in the city, persons directly engaged in and representative of the commerce, trade, industries and professions of the city.

3. The following bodies shall have the right to recommend persons as members of the Committee, viz.:—the Council of University College, Liverpool, or of the University of Liverpool,

* This scheme was approved by the Board of Education on the 24th March, 1903.

two ; the Liverpool United Trades and Labour Council, *one* ; associations representing the different kinds of voluntary schools, that is to say :—(a) an Association recognised by the Council for the purpose comprising the Church of England elementary schools within the city of Liverpool, *two* ; (b) an Association recognised by the Council for the purpose comprising the Roman Catholic schools within the city of Liverpool, *one* ; (c) Associations recognised by the Council for the purpose representing Wesleyan and other voluntary schools within the city of Liverpool not hereinbefore provided for, *one* ; the Governing Bodies of the different kinds of public secondary schools, *three*, one of whom shall be a woman ; Liverpool and District Teachers' Association of the National Union of Teachers, *one* ; the Liverpool School Board in the case of the first Committee. For subsequent Committees such members shall be appointed by the City Council, *four*, one of whom shall be a woman ; the City Council shall also appoint from amongst persons experienced in education and persons acquainted with the needs of the various kinds of schools in the city, *three*, at least one of whom shall be a woman. Total, 18.

4. The recommendations shall be submitted to the City Council within a period to be fixed by them, and the City Council may reject any recommendation and require another recommendation to be submitted to them within a further period to be fixed by them. If a recommendation is not submitted to the Council within the time fixed by the Council, or if after the Council have rejected a recommendation, another recommendation, satisfactory to the Council, is not submitted by the body entitled to make such recommendation within the time fixed by the Council for so doing, the Council may themselves fill up the vacancy on the Committee.

5. The persons to be recommended as members of the Committee by Associations representing the different kinds of schools in the city of Liverpool and by the Governing Bodies of the different kinds of public secondary schools in the city of Liverpool shall be elected in accordance with regulations to be from time to time framed by the City Council for the purpose. Members of the Council shall be eligible to serve as recommended members of the Committee.

6. In the event of any of the recommending bodies ceasing to exist, the City Council shall substitute such other body as in their opinion is of the same character or represents the same interests as the body which shall cease to exist.

7. The first appointment of the Education Committee shall be made at a meeting of the City Council, to be held within one month after the approval of this scheme by the Board of Education.

8. The members of the Committee shall be appointed at the meeting of the City Council to be held on the 9th day of November in every year and shall hold office for one year; provided, nevertheless, that members of the first Committee shall hold office up to the 9th day of November, 1904, and the next appointment of the Committee after the first appointment shall be made on the 9th day of November, 1904.

9. In the event of any member of the Committee who shall be appointed by the City Council from amongst the members of that body ceasing to be a member of the City Council, he shall cease to be a member of the Committee.

10. In the event of a vacancy occurring on the Committee, the Committee shall report such vacancy to the next meeting of the City Council, who shall thereupon fill up the vacancy; provided nevertheless that if such vacancy shall be caused by the death, resignation or disqualification of any member of the Committee who shall have been appointed by the City Council on the recommendation of any of the bodies mentioned in clause 3 of this scheme, such body shall be requested to recommend another person as a member of the Committee, and the provisions of clause 4 of this scheme shall thereupon apply to such recommendation.

NON-COUNTY BOROUGHES.

*(a) RICHMOND (SURREY).**

1. As soon as may be after the approval of this scheme by the Board of Education, the Council of the borough of Richmond (Surrey) (hereinafter referred to as the Council) shall constitute an Education Committee for carrying into effect within the borough, Part III. of the Education Act, 1902 (hereinafter called the Act) relating to elementary education, and for any other purposes of the Education Acts, 1870 to 1902.

2. The Education Committee (hereinafter called the Committee) shall, when complete, consist of 27 members appointed by the Council, including persons of experience in education and persons acquainted with the needs of the various kinds of schools in the borough. Not less than 16 nor more than 18 of these shall be members of the Council and shall be called Council members. The other members shall be called selected members, and of them at least two shall be women.

* This scheme has not been *finally* approved by the Board of Education; any important changes will be notified in our next issue.

3. The following interests, viz.:—university education, the secondary education of boys and girls in its higher and lower grades, technical instruction and commercial and industrial education, elementary education in Council schools and voluntary schools, shall always be represented either among the Council members or the selected members.

4. The selected members shall be appointed by the Council for such term not exceeding three years as the Council from time to time determine.

5. If and so long as the Surrey County Council by agreement with the Council make arrangements for the exercise by the Council, on such terms and subject to such conditions as may be agreed on, of the powers of the County Council under Part II. of the Act, in respect of the management of the Richmond County School, technical instruction classes, evening continuation classes and other matters of secondary or higher education within the borough, the County Council shall be entitled to nominate six of the selected members of the Committee and one at least of the six shall be a woman.

6. Of the Council members, one-third shall go out of office on the 9th November in each year. Every member so going out of office shall, if a member of the Council, be eligible for re-election. The Council shall determine the order of retirement and number to retire of the first Council members, but no such retirement shall take place before the 9th November, 1904.

7. A Council member ceasing to be a member of the Council shall cease to be a member of the Committee, but shall, if qualified, be eligible for appointment as a selected member.

8. A selected member (other than members nominated by the County Council), who, when appointed, resided in the borough, shall, on ceasing to reside therein, cease to be a member of the Committee, unless the Council otherwise expressly determine.

9. No person shall be disqualified from being a selected member by reason of his being a member of the Council.

10. A casual vacancy shall be filled as soon as practicable after the vacancy has occurred, but only for the remainder of the term for which the vacating member was appointed.

11. The chairman of the Committee shall be a member of the Council.

12. Any member of the Committee who is incapacitated from acting or who notifies to the Committee a wish to resign, or who is absent from all meetings of the Committee for six months (except for some reason approved by the Committee), shall thereupon cease to be a member of the Committee.

(b) SHREWSBURY.*

1. An Education Committee shall be established by the Council in accordance with the scheme—(a) for the purpose of supplying or aiding the supply of education other than elementary ; and (b) with respect to elementary education.

2. The Committee shall consist of 24 persons. Sixteen of these persons shall be members of the Council, of whom the Mayor for the time being shall be one, and the three members of the Council now serving on the School Board shall be members of the first Committee appointed.

3. Eight persons, not members of the Council, in the selection of whom regard shall be had to their experience in elementary, technical and higher education and their acquaintance with the needs of the various kinds of schools in the borough, shall be appointed by the Council to be members of the first Committee. Of these, three, at least, shall be members of the existing School Board, and one, at least, shall be a woman.

4. For the second and future Committees the Council, in place of the persons referred to in paragraph three, shall appoint eight persons not members of the Council who shall be experienced in education or acquainted with the needs of the various kinds of schools in the borough. Of these, four shall be so appointed after consideration by the Council of recommendations from the following bodies and to the number set opposite to their respective names.

	No. of persons to be recommended.	No. of members to be appointed.
The foundation managers of the Church of England voluntary schools in Shrewsbury.....	6	2
The foundation managers of the Roman Catholic schools in Shrewsbury	3	1
The foundation managers of the British schools in Shrewsbury	3	1

The remaining four, one of whom, at least, must be a woman, shall be appointed by the Council, and in their selection regard shall be had to their experience in technical, secondary and higher education. In case any of the bodies hereinbefore named cease to exist, the person appointed on the recommendation of such body shall cease to be a member of the Committee, and the Council shall thereupon appoint such person to fill the vacancy as they shall think fit.

* This scheme was approved by the Board of Education on the 31st March, 1903.

5. Whenever a recommendation for appointment in accordance with paragraph four is made, the person acting for the time being as the secretary or other authorised officer of the body so recommending, shall by writing under his hand certify such recommendation to the Council and shall forthwith transmit the certificate to the Town Clerk. In the event of any of the said bodies failing to make and certify in manner aforesaid any recommendation within ten days after notice in writing to the person acting as their secretary or other authorised officer so to do from the Council under the hand of the Town Clerk, the Council shall forthwith appoint such person to fill the vacancy as the Council shall think fit.

6. The first Committee shall continue in office until the 9th day of November, 1906, and all future Committees shall be appointed for a period of three years.

7. The chairman of the Committee must be a member of the Council, and also the vice-chairman, if one is appointed.

8. The Town Clerk shall convene the first meeting of the Committee within 14 days after their appointment, by notice in writing, addressed and posted to each member at least two clear days before such meeting.

9. Any member of the Committee who, being a member of the Council, ceases to be a member of the Council, or any member who becomes disqualified to act, or who communicates, in writing, to the Town Clerk his desire to resign, shall thereupon cease to be a member of the Committee, and a casual vacancy on the Committee shall thereupon occur.

10. If a member of the Committee absents himself during six successive calendar months from all meetings of the Committee, except from temporary illness or other cause to be approved by the Committee, such person shall cease to be a member of the Committee, and a casual vacancy on the Committee shall thereupon occur.

11. Members appointed to fill casual vacancies shall be appointed only for the remainder of the term of office of the outgoing member, and subject to the same provisions as regulated the appointment of that member.

AN URBAN DISTRICT COUNCIL.

WIMBLEDON.*

1. From the date of this scheme there shall be established an Education Committee of the Council of the urban district of

* This scheme was approved by the Board of Education on the 9th March, 1903.

Wimbledon (hereinafter called the Council) for the purposes of the Education Act, 1902.

2. The Education Committee shall consist, when complete, of 15 members, of whom nine at least shall be members of the Council, and who are hereinafter termed representative members, and the remaining six members shall be appointed by the Council from outside their body, and which latter members shall be termed co-optative members. Included among the members of the Education Committee shall be persons of experience in education and persons acquainted with the needs of the various kinds of schools in the area for which the Council acts, and of the numbers of persons to be so appointed two at least shall be appointed as representing the interests of higher education, one at least as representing the interests of education of an university grade, one at least as representing the interests of voluntary schools, and two at least shall be women. There shall also be appointed, but included within the said 15 members, at least three persons of experience in and to represent the interests of elementary education.

The first co-optative members shall be appointed for the term of three years to be computed as and from the date of the next annual meeting of the Council, and shall be as under-mentioned:—Mrs. Arthur Holland; Miss Edith Hastings, of the High School for Girls, Mansel Road, Wimbledon; the Rev. C. W. Bourne, M.A., of King's College School, Wimbledon Common; Mr. G. Edwardes-Jones; Mr. John Frederick Schwann, J.P.; Mr. Arthur Webb.

3. The first representative members of the Education Committee shall be appointed and shall hold office until the next annual meeting of the Council, and thereafter such representative members shall be appointed by the Council at the annual meeting thereof and shall continue in office until the date of the succeeding annual meeting of the Council.

4. The co-optative members of the Education Committee shall be appointed for a period of three years.

5. Any vacancy occurring, otherwise than by effluxion of time, on the Education Committee shall be filled by the Council at their next ordinary meeting after such vacancy arises, and the person appointed shall hold office only for the remainder of the term for which the outgoing member was appointed to serve; and the person so appointed shall be appointed to represent the particular interest in education previously represented by such outgoing member and in respect of which such vacancy arose.

6. Any future appointment in respect of a particular interest in education for which the Council is required by the scheme

to provide representation shall be made by the Council after communication with and due inquiry from any body representative of that interest.

7. The date of this scheme shall be the day on which it is approved by an Order of the Board of Education.

(ii) CO-OPERATION OF LOCAL AUTHORITIES.

SURREY AND RICHMOND.*

An Agreement made the _____ day of _____ 1903, between the Council of the administrative county of Surrey (hereinafter called the County Council) of the one part, and the Mayor, Aldermen and Burgesses of the borough of Richmond (Surrey) acting [by the Council (hereinafter called the Corporation) of the other part.

Whereas the County Council are the Local Education Authority in the county and the borough under Part II. of the Education Act, 1902, and the Corporation are the Local Education Authority in the borough under Part III. of the said Act, and whereas the Corporation have resolved to submit a scheme to the Board of Education for the constitution of an Education Committee for the borough under the Act,

It is hereby agreed between the County Council and the Corporation as follows:—

1. So long as the Borough Education Committee constituted by scheme consists of not more than 27 members, of whom six are or may be nominated by the County Council (one of such six to be a woman) the County Council will delegate to the Borough Education Committee the following powers of the County Council under Part II. of the Act:—(a) the management of evening continuation schools in the borough held in the elementary school premises, with the right of user of such premises conferred by the Act, (b) the management of any pupil-teacher centre which may be established in the borough, (c) the management of the higher education (technical) evening classes held at the county school in the borough. The Borough Education Committee shall also exercise and carry out the powers of the Governors under the scheme for the administration of the said county school; and also the management of any other matters relating to higher or secondary education which the County Council may hereafter determine to undertake in the borough.

* This Agreement has not yet been *finally* approved by the Board of Education; any important changes will be notified in our next issue.

2. The exercise by the Borough Education Committee of the powers of the County Council under paragraph (c) shall be in accordance generally with the regulations affecting the same contained in the directory relating to technical and secondary education issued by the County Council for the session 1901-2, or any modification of those regulations which shall hereafter be made by the County Council and be applicable to the borough.

3. The County Council will make to the Corporation all such money grants as are specified in the said directory and scheme for schools and classes in the borough, and such further grants as may be agreed upon or determined to be necessary to enable the Borough Education Committee to adequately exercise and fulfil the powers aforesaid and discharge the duties incidental thereto.

4. This agreement shall take effect for three years from the 1st of July, 1903 (except as regards the administration of the county school, which shall take effect from the 1st of September, 1903, for the then remainder of the said term of three years) and thenceforth until determined by mutual agreement or by not less than one year's notice in writing from one of the parties to the other of them and left with the clerk of such other party at his office.

5. Any difference arising under or out of this Agreement shall (unless otherwise agreed) be referred to the Board of Education for decision.



THE MUNICIPAL TECHNICAL INSTITUTE, BELFAST (BAKERS' CLASS—CAKE ORNAMENTATION SECTION). (See page 229.)

III.—THE EDUCATIONAL SYSTEM OF IRELAND.

By F. C. FORTH, ASSOC. R.C.Sc.I., PRINCIPAL OF THE
MUNICIPAL TECHNICAL INSTITUTE, BELFAST.

In the year 1899 an Act of Parliament was passed entitled "The Agriculture and Technical Instruction (Ireland) Act," and thereby a Department of Agriculture and Technical Instruction for Ireland was called into existence. The powers and duties of this Department as regards technical instruction are set out in Part I. of the Act, where, *inter alia*, these are stated to be "to administer the grant for science and art in Ireland" and "to control any institution in Ireland formerly controlled by the Science and Art Department."

It is proposed in this article to give, firstly, an account of the administration of the primary, secondary and university education systems of the country; and, secondly, an outline of the steps taken to put the above-named Act into operation in Belfast, especially enumerating some of the results which have accrued up to the present time in connection with technical instruction. The bibliography given in the Appendix on pp. 231-2 may be useful for purposes of reference.

In order that the nature and extent of the Irish education problem may be better appreciated, it may be noted here that the population of Ireland, according to the census of 1901, numbers 4,456,546 persons, and that it has fallen to this number from 8,196,597 in the year 1841. It is also convenient to mention at this point that the population of the City of Belfast is in round numbers 350,000 and that it is steadily increasing. In the year 1851 the population was only 87,052. The changes that have taken place in the population during the past six decades are strikingly shown in the accompanying comparative table (given over-leaf), from which it may be roughly computed that whereas the population of the whole country has diminished by nearly one-half that of Belfast has increased nearly five-fold. It is thus scarcely necessary to emphasise the importance to the country as a whole of securing adequate and systematic facilities for education of all grades within that city.

Year.	Population of	
	Ireland.	Belfast.
1841	8,196,597	70,447
1851	6,574,278	87,062
1861	5,798,967	121,602
1871	5,412,377	174,412
1881	5,174,836	208,122
1891	4,704,750	273,114
1901	4,456,546	348,876

(I) A GENERAL SURVEY.

Elementary Education.

The elementary education of the country is controlled by the Commissioners of National Education in Ireland, a body whose head office is in Dublin. The Board was first constituted in the year 1831; it was granted a Charter in the year 1845, and received a supplemental Charter in the year 1861. As to the composition of the Board, it is provided that the Commissioners shall not exceed 20 in number, and that not more than ten shall be Roman Catholics and not more than ten Protestants. Appointments on the Board are made by the Lord Lieutenant of Ireland. The duties of the Commissioners as defined by the Charter are "to administer the system of national education so as to afford combined literary and moral and separate religious instruction to children of all persuasions."

The Civil Service Estimates show that the sum allotted to the Commissioners for the year 1903-1904 to defray the expenses of administration, inspection, training colleges, model schools, national schools, manual and practical instruction, teachers' residences, school grants and the teachers' pension fund is £1,347,101.

COMMISSION ON MANUAL AND PRACTICAL INSTRUCTION.—In the year 1897 a Viceregal Commission was appointed to determine how far and in what form manual and practical instruction should be included in the educational system of primary schools under the Board. The Commission presented their report in the year 1898. Amongst the salient paragraphs in this document the following may be quoted:—"A strong desire exists throughout this country, and is growing stronger every day, for the introduction of a general system of technical education." Again, "It is thought that a good system of technical education would contribute largely towards the introduction of arts and industries of Ireland." And again, "The present system of primary education is so one-sided in its character that it leaves the pupils quite unprepared for technical education."

As a consequence of the Commissioners' recommendations various important changes and emendations were made, amongst which may be noted the abolition of the result fees system, alterations in the methods of inspection, the introduction of manual training courses and of instruction in elementary science, increased attention to drawing, vocal music, cookery and laundry work, and an extension of the facilities for the establishment of evening continuation schools.

THE SCHEME OF INSTRUCTION.—The Regulations of the Commissioners require that in day schools a minimum of four hours secular instruction shall be given on five days of the week. In the greater number of schools the school-day consists of one meeting, the opening hour being usually 9-30 a.m. and the closing hour 2 p.m. or 2-30 p.m., with a short break about 12 o'clock. In the remainder of the schools there are two meetings per day, the hours being in general 9-30 a.m. to 3 p.m., with an interval of about one hour. The Programme of the national school system now covers instruction in English, arithmetic, kindergarten methods and manual instruction, object lessons, elementary science, singing, school discipline and physical drill, cookery and laundry work, needle work, and optional or extra subjects, amongst which are included Irish, French, Latin, mathematics and instrumental music. The instruction is spread over six Standards. The minimum age for the First Standard is three years, whilst the age for the Sixth Standard is given as 13 years and above.

A child who has passed the Fifth Standard and has attained the age of eleven years is exempt from attendance at school. Children above 14 years of age are exempt without regard to Standard. It is found that under existing conditions only a small percentage of children qualify for exemption before the age of 13 years, though it is stated that there is a considerable leakage of children from the schools before that age is reached.

MANAGEMENT AND CONTROL.—Schools are classified as vested and non-vested schools. Vested schools are those for which the Commissioners grant two-thirds of the cost of building and equipment, the remaining third being furnished locally, whilst non-vested schools are those provided entirely by local effort. The government of each national school is vested in patrons or local managers nominated locally and approved by the Commissioners for the particular school. A patron or manager may be either a clergyman or layman, though the majority are clergymen. The schools are in the majority of instances connected with places of worship. The local manager is charged with the direct government of the school, the appointment and removal of teachers and the

carrying on of all necessary correspondence with the Commissioners. He is also responsible for the repair and maintenance of the school buildings. A point to be specially noticed is that there is no control of schools by Local Authorities, all control being in the hands of the patrons or managers, who are directly responsible to, and in turn controlled by, the central authority in Dublin.

The salaries of teachers are covered by what is termed a consolidated grant, supplemented by a small capitation grant, and payment is made quarterly to the teachers and directly by the Commissioners.

The instruction in the national schools is under the supervision of an inspectorate in the service of the Commissioners.

MODEL SCHOOLS.—These are schools under the direct patronage of the Commissioners of National Education. As stated in the Rules and Regulations of the Commissioners the chief objects of model schools are “to promote united education, to exhibit to the “surrounding schools the most improved methods of literary and “scientific instruction and to educate young persons for the office “of teachers.” There is such a school in Belfast, having in the year 1901 an average daily attendance of 762 (boys and girls).

SCHOOL ATTENDANCE COMMITTEES.—In a number of the larger centres in Ireland School Attendance Committees supervise the attendance of children at school. In the case of Belfast the Committee consists of ten members, five being chosen by the City Corporation, though not necessarily from its own members, and five by the Commissioners of National Education. The members are appointed for a term of three years. The Committee derive their powers to enforce attendance from the Irish Education Act, 1892. In Belfast the School Attendance Officers are 14 in number, with a superintendent in responsible charge. The cost of this department is defrayed by the Local Authority out of the rates. The average daily attendance at national schools in the year 1901 for the whole of Ireland was 63·9 per cent. of the number of children on the school rolls, and for Belfast it was 72 per cent.

HIGHER PRIMARY EDUCATION.—No adequate or systematic organisation exists for providing education of a higher grade character. In Belfast a few national schools of higher standing, the model school, and certain of the schools belonging to the Christian Brothers provide a more extended course, but there is a lack of proper educational provision for the great mass of children, and this is perhaps the weakest spot in the existing organisation of elementary education. It is stated that the Board of National Education are now making a move towards remedying this defect, and that they have decided to establish in selected primary schools

a course of higher primary instruction. Clever children of poor parents will be encouraged to take this course by means of small bursaries to replace the wages which they might otherwise have earned.

EVENING CONTINUATION SCHOOLS.—New Regulations for these schools came into operation in the autumn of the year 1901. According to the reports of the Inspectors, little result has accrued, one Inspector stating that “the regulations have not had as wide an effect as was anticipated,” and another saying “that on the whole the schools have failed.” It is certain that as far as Belfast is concerned the scheme has been availed of, but to a very limited extent, owing, as it is thought, to the rules being too stringent and lacking the elasticity and adaptability demanded by a new departure. The provision made in the Civil Service Estimates for this class of instruction for the year 1903-1904 is £9,700. In the previous year the amount was only £2,700. These amounts are for the whole of Ireland.

There are probably not 2,000 pupils in moderately-regular attendance at all the evening continuation classes in Belfast. It will be readily seen how much still remains to be done when this record is contrasted with the provision in a city such as Manchester, where with a population of about 540,000 persons there were in the year 1900 about 16,220 pupils attending evening continuation schools, and the Government grant amounted to £10,220.

THE NEED FOR SCHOLARSHIP PROVISION AND FOR CORRELATION.—An extremely limited number of national school pupils find their way into institutions providing higher education. This is mainly attributable to restricted opportunities, as there are very few scholarships available to facilitate the transition, whilst, as elsewhere, the fees in most of the secondary schools are prohibitive for the great mass of national school children. It follows as an inevitable consequence that of the more capable children only an exceedingly small proportion secure opportunities of climbing the educational ladder, however desirous many may be of doing so; hence the stream flows direct from the national school to the commercial or industrial world, or the Civil Service. The Civil Service is the great outlet for the brighter children, and accordingly there are quite a number of vigorously-managed academies engaged in preparing candidates for Government appointments.

Secondary Education.

The control of secondary education is vested in the Intermediate Education Board for Ireland, a body with its offices in Dublin. The Board derives its powers from the Intermediate Education

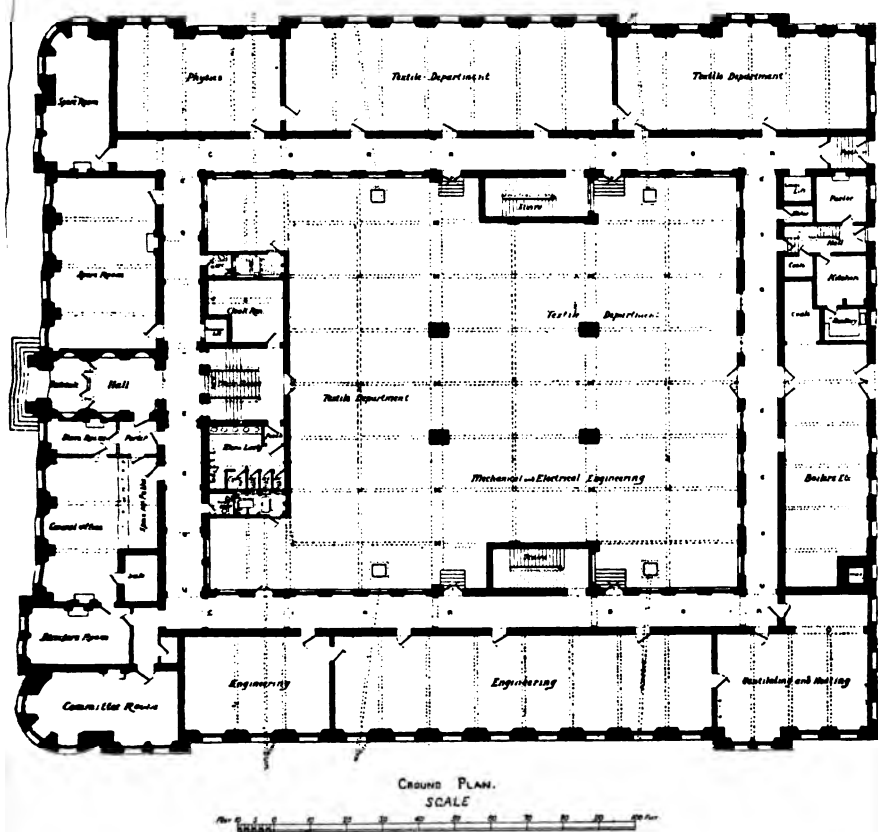
(Ireland) Acts, 1878 to 1900. It numbers twelve members, all being appointed by the Lord Lieutenant of Ireland.

FINANCE.—In the year 1878 a sum of £1,000,000 was placed at the disposal of the Board, and this by investment of surpluses has now become £1,020,300. The annual income of the Board is made up of the interest on the above sum (yielding, in 1891, £28,084), with an annual grant under the Local Taxation (Customs and Excise) Act, 1890, amounting in 1901 to £64,730. These sums, together with examination fees, bank balances, etc., provided in the year 1901 a total of £118,652. These moneys are applied in meeting the expenses of administration, the payment of capitation grants and bonus school grants, and for prizes, exhibitions, etc.

THE SCHEME OF INSTRUCTION.—Under the intermediate scheme instruction is provided both for boys and girls. The Board's Programme comprises all the usual subjects of a secondary school course, including English, modern and dead languages, mathematics, commercial subjects, natural science, experimental science, drawing and domestic economy. All the examinations, except those in experimental science and drawing, are conducted by printed papers. There are four grades of examination, viz., preparatory, junior, middle and senior. In each of the three last named there are four distinct courses, viz., the classical, the modern literary, the mathematical and the experimental science course. A candidate must be over 13 years of age and under 19 years of age at the date of examination to be eligible for admission to examination in any grade, with the exception that in the preparatory grade the maximum age is 15 years. The benefits of the scheme are open equally to public and proprietary schools, and it is optional for any school to adopt the scheme.

AWARDS, EXAMINATION AND INSPECTION.—In addition to book prizes and medals, the Board award a number of exhibitions, value £20 each for the junior grade, £30 in the middle grade and £50 in the senior grade. To be eligible for prizes, medals or exhibitions, candidates must be under 16 years of age for the junior grade, under 17 for the middle grade and under 18 for the senior grade. No prizes, medals or exhibitions are directly offered by the Board in the preparatory grade, but indirectly prizes are available, as the Board place a sum of money at the disposal of the managers or head-master of a school for the purpose of supplying prizes to preparatory grade candidates. The number of exhibitions awarded in each grade is dependent upon the number and excellence of the passes with honours.

By arrangement between the Intermediate Education Board and the Department of Agriculture and Technical Instruction the examinations in experimental science and drawing are conducted



THE NEW MUNICIPAL TECHNICAL INSTITUTE, BELFAST (NOW IN COURSE OF ERECTION). (See page 225.)

SKETCH PLAN OF THE CITY OF BELFAST.

Buildings used by the Library and Technical Instruction Committee are shown thus:—

Other Public Buildings are shown thus:—



PLAN OF THE CITY OF BELFAST SHOWING THE LOCATION OF CENTRES OF INSTRUCTION. (See page 226.)

by the Department. In the year 1901 a total of 8,117 candidates presented themselves for the intermediate examinations. Of these, 5,829 were boys and 2,288 girls. The number of students who passed the examinations was 5,332; of these, 3,752 were boys and 1,580 girls; 495 exhibitions were awarded.

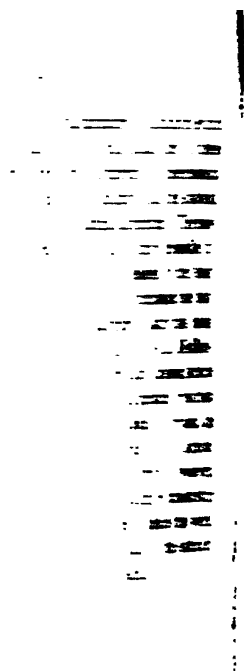
All schools sharing in the Intermediate Education Board's grants are subject to inspection. Until about 18 months ago the Board took no cognisance of the condition of school buildings, nor was any inquiry made as to the qualifications of teachers, but under the system of inspection these matters now receive attention.

COMMISSION ON INTERMEDIATE EDUCATION.—A Viceregal Commission was appointed in the year 1898 to inquire into the intermediate education system, and in the following year the Commission presented a report. The scheme of instruction, examination, inspection and capitation payments now in force and outlined above is largely the outcome of the report of the Commission, the powers for the reconstruction of the scheme having been obtained by the Intermediate Education Board in consequence of the passing of the Intermediate Education Act of 1900.

RESULTS.—It is admitted generally that the programme of the Intermediate Board has supplied a great stimulus to secondary education in Ireland, whilst the co-operation of the Board with the Department of Agriculture and Technical Instruction in regard to experimental science and drawing and manual instruction since the year 1901 has been the means of giving a much-needed practical turn to the education imparted.

COMMISSIONERS OF EDUCATION IN IRELAND.—This body has the control of funds acquired under the Educational Endowments (Ireland) Act, 1885. These funds are derivable from various sources, but chiefly from rents of land and from investments. The annual income of the Commissioners is a variable quantity. In the year 1899 it amounted to £7,633.

In tracing the origin of the endowments we are taken back to the period of the plantation of Ulster, at which time King James I. directed that certain lands in Ulster should be assigned for the maintenance of five grammar schools to be established in the Northern Province. At later dates additional bequests of land were given by King Charles I. to enable schools to be established in other parts of the country. A small portion of the Commissioners' income is drawn from other bequests, amongst which are the Banks Endowment, the Viscount Limerick Endowment, etc. The moneys are now chiefly applied, under the title of "Ulster Royal School Endowments" to the maintenance of schools in Ulster providing intermediate education.



struction in Ireland the only one from (a) the system of science and Art Department ; (b) the "local" ; and (c) local contributions. All such moneys was quite small, therefore, a matter of no consequence as the number of technical schools was quite disproportionate to the corresponding areas in England, where science and art students steadily increased, art and technical instruction was non-existent. Additional facilities for technical education were provided in the Second Report of the Commission of 1884.

COMMITTEE.—This condition of affairs continued year after year from a number of years. The Irish Association for the Advancement of Science showed no signs of change until 1887 when Hon. Horace Plunkett, M.P., was elected President, drawing attention to the need for the material and social advancement and encouragement of industrial and technical education. The letter of the Association should be formed to discuss the subject of Agriculture for Ireland and Technical Education Bill. The Association was supported by the Press and by public men, and a committee, termed the Recess Committee, was formed to consider the above-mentioned proposals, and of this Committee was appointed Chairman. The Association also appoints a Consultative Committee.

The committee presented to the Chief Secretary a report of their deliberations in a valuable paper published in "The Record" in 1888.

1889.—As a direct outcome of the recommendations of the Agriculture and Technical Education Bill of 1889. This Act, which was passed in October, 1889 (pp. 495-512), transferred the Department of Agriculture and Technical Instruction, laid down the powers

The endowments are administered in the various localities by local Boards of Education elected on sectarian lines. The five districts represented are Armagh, Cavan, Donegal, Fermanagh and Tyrone. The schools termed the "Royal Schools" are under the control of the Protestant Local Board of Education, and the Roman Catholic Boards of Education have also schools under their control. In most of the schools there are free places, but these are very limited in number.

In the year 1899 the number of pupils on the rolls of the institutions sharing in the Ulster Royal School Endowments was 590; of these, some 290 competed at the intermediate examinations. It is convenient to mention here that in Belfast the institutions providing intermediate education for boys are the Royal Belfast Academical Institution, St. Malachy's College, the Royal Academy, the Methodist College, the Campbell College and the Christian Brothers' schools. The control of some of these schools is in the hands of locally elected managers. For girls there are a number of private institutions, one of the largest and best known being the Victoria College.

Technical Instruction.

ITS CONDITION BEFORE 1899.—Prior to the year 1899 the condition of technical instruction in Ireland was exceedingly unsatisfactory. This is well demonstrated by the figures set out in the last annual Parliamentary Return which showed the expenditure on technical education by Local Authorities in the whole of the United Kingdom. From this Return it appears that the total amount expended in England during the year 1896-1897 was £775,608, in Scotland £48,073, in Wales, including Monmouthshire, £32,303, and in Ireland only £4,784. For the year 1900-1 the figures are even more conclusive. In that year a sum of £1,006,630 was expended in England, £61,700 in Scotland and £44,791 in Wales, while in Ireland the amount expended for the year 1896-7 was only increased by a few hundred pounds.

The stimulus given in England by the allocation to Local Authorities of the Residue of the English share of the Local Taxation (Customs and Excise) Duties for the purposes of technical education is well known, but as the Irish share of these duties was allotted to the extent of £78,000 to the Commissioners of National Education, and the Residue to the Intermediate Education Board, Irish technical schools were excluded from participation in the benefits conferred by the Act on technical schools and other institutions in the sister country.

For science, art and technical instruction in Ireland the only funds available were those obtainable from (a) the system of payments controlled by the Science and Art Department; (b) what is known as the "equivalent grant"; and (c) local contributions from the rates; but the total of all such moneys was quite inadequate for these purposes. It is, therefore, a matter of no surprise to find that in the urban areas the number of technical classes was exceedingly limited, and quite disproportionate to the population when compared with corresponding areas in England, whilst year by year the number of science and art students steadily decreased. In the rural districts science, art and technical instruction was to all intents and purposes non-existent. Additional evidence as to the general absence of facilities for technical instruction is furnished in Vol. I. of the Second Report of the Royal Commission on Technical Instruction of 1884.

THE WORK OF THE RECESS COMMITTEE.—This condition of things, though receiving attention year after year from a number of thoughtful men, and particularly by the Irish Association for the Promotion of Technical Education, showed no signs of change until the year 1895. In that year the Rt. Hon. Horace Plunkett, M.P., addressed a letter to the Irish Press drawing attention to the necessity for a combined movement for the material and social advancement of the country, the encouragement of industrial enterprise and the provision of practical education. The letter further suggested that a committee should be formed to discuss the possibility of establishing a Board of Agriculture for Ireland and of securing the passing of a Technical Education Bill. The suggestion was well received by the Press and by public men, and, as a result, a representative Committee, termed the Recess Committee, was formed to discuss the above-mentioned proposals, together with other related suggestions, and of this Committee the Rt. Hon. Horace Plunkett was appointed Chairman. The Committee associated with themselves a Consultative Committee for the Province of Ulster.

In July, 1896, the Recess Committee presented to the Chief Secretary for Ireland the result of their deliberations in a valuable report which was specially reviewed in "The Record" in January, 1897 (pp. 17-63).

PROGRESS UNDER THE ACT OF 1899.—As a direct outcome of the report of the Recess Committee, the Agriculture and Technical Instruction (Ireland) Act was passed in 1899. This Act, which was published *in extenso* in "The Record," October, 1899 (pp. 495-512), provided for the establishment of a Department of Agriculture and other Industries and Technical Instruction, laid down the powers

and duties of the Department, and provided funds and indicated the way in which these funds should be applied. The Chief Secretary for Ireland is named in the Act as President of the Department, and the Right Hon. Horace Plunkett was later appointed Vice-President. The other principal officers are Mr. T. P. Gill, Secretary; Mr. R. Blair, M.A., B.Sc., Assistant Secretary in respect of technical instruction; and Professor J. R. Campbell, Assistant Secretary in respect of agriculture.

The Department commenced their operations by outlining their policy and method of procedure, the encouragement of local initiative, with a central direction, being made a prominent feature. As required by the Act, a representative Council of Agriculture, an Agricultural Board and a Board of Technical Instruction were formed. Pioneer lectures were delivered throughout the country with the object of making known the existence of the Department and stirring up interest in their programme. At the same time Local Authorities were invited to prepare and submit educational schemes suitable to their respective areas. During this introductory period the officers of the Department were busily engaged in conferring with committees and advising as to the best modes of procedure. Particulars of the special work undertaken by the Department and of the movements of the Local Authorities in connection with technical and agricultural education have appeared periodically in these columns.

Out of the annual sum of £55,000 set aside for technical instruction, it was determined to allot an annual sum of £25,000 to the six county boroughs, the remaining £30,000 to be applied elsewhere than in the county boroughs and for the other purposes mentioned in the Act. The proportion allotted to each county borough, including Belfast, is given in the accompanying table. The population of each county borough, as given in the 1901 Census Returns, served as the basis of division, and the Department of Agriculture and Technical Instruction decided that the proportions arrived at should hold good for three years.

County Borough.	Population in 1901.	Allocation of £25,000.
		£ s. d.
Dublin	260,247	8,288 19 0
Belfast	349,180	10,943 4 9
Cork	76,122	2,436 6 1
Limerick	38,151	1,219 1 7
Londonderry	39,892	1,256 12 7
Waterford	26,769	855 16 0
Totals	<u>790,361</u>	<u>£25,000 0 0</u>

These moneys are given on the understanding that the Municipalities shall levy annually a rate of one penny in the £.

MISCELLANEOUS.—Amongst other events which may be taken as having arisen out of the present movement for the furtherance of technical instruction may be mentioned the formation of an Association of Principals of Technical Institutes in Ireland and the establishment of a new journal, named "The Irish Technical Journal," the first three numbers of which are now in print.

The Cork International Exhibition of 1902 and the Exhibition proposed for the current year in the same city may be taken as further evidences of the industrial revival in Ireland. The Exhibition of last year was a distinct success, and this success was largely contributed to by the inclusion in the Exhibition of the very important section formed under the auspices of the Department of Agriculture and Technical Instruction. In that section, working exhibits of various kinds, showing pottery, basket-work, etc., in process of manufacture, brought under the notice of visitors from all parts of the country the possibilities that existed in the direction of similar industries. The efforts of the Department in organising visits to the Exhibition from the most remote parts of Ireland also produced excellent results.

University Education.

During the years 1901-2 a Royal Commission, under the chairmanship of Lord Robertson, was appointed "to inquire into the present condition of the higher, general and technical education available in Ireland outside Trinity College, Dublin, and to report as to what reforms, if any, are desirable in order to render that education adequate to the needs of the Irish people." The Commission held a number of sittings in Dublin, Belfast and Cork and also in England, the evidence taken at the different sittings being issued in three bulky volumes. The final report, published in February last, sets out in considerable detail the lines followed by the Commissioners in pursuing their inquiries. The following summary gives the principal conclusions and recommendations of the Commissioners:—

1. That the present arrangement by which the degrees of the Royal University are obtainable by examination alone has lowered the ideal of university life and education in Ireland, and should be abolished.
2. That the system by which, in making appointments to the Senate and all the offices of the Royal University, account must be taken of the religious profession of the persons to be appointed with a view to maintain the even balance between the Churches is educationally indefensible.

3. That the system by which an indirect State endowment for certain colleges is provided by means of Fellowships in the Royal University held by professors in these colleges, who act as university examiners, must be condemned.

4. That the Royal University should be converted into a Teaching University.

5. That the present Senate of the Royal University should be superseded by a Governing Body constituted on an academic basis in the manner explained in Section VI. of the Report.

6. That the reconstituted Royal University should be a Federal University with constituent colleges.

7. That the constituent colleges should be Queen's College, Belfast, Queen's College, Cork, Queen's College, Galway, and a new college for Roman Catholics to be established in Dublin, and constituted on the lines suggested in Section VI. of the Report.

8. That the endowment and equipment of the new college in Dublin should be on a scale required by a university college of the first rank, which is intended to draw its students from all parts of Ireland.

9. That the Catholic University School of Medicine should be absorbed in the new college in Dublin.

10. That the present government and constitution of the Queen's Colleges should be remodelled on the lines suggested in Section VI. of the Report.

11. That the colleges should be accorded a large measure of autonomy, so that each may be enabled to develop freely on its own lines, while at the same time conforming to the common standard of culture prescribed by the University.

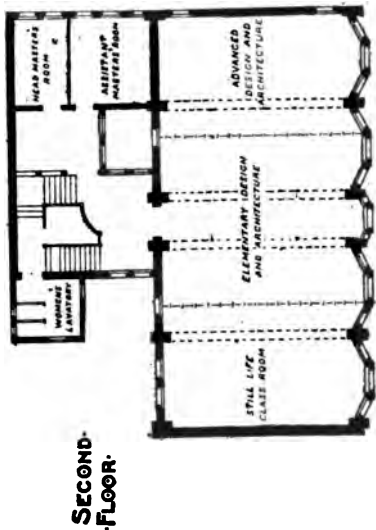
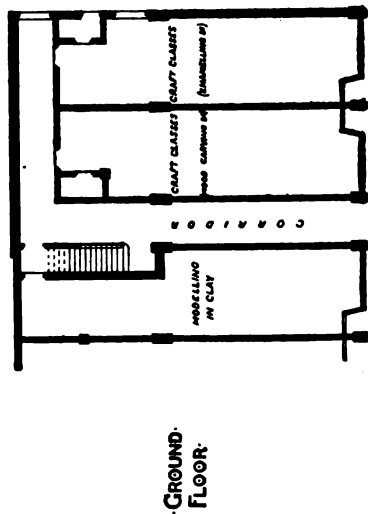
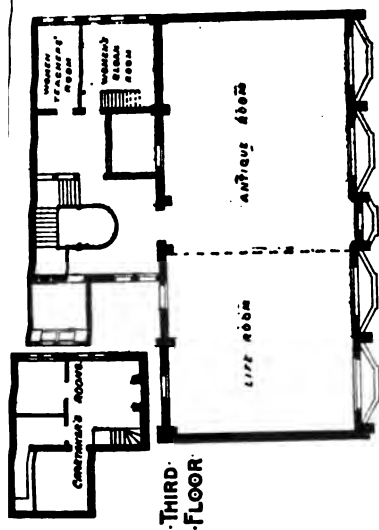
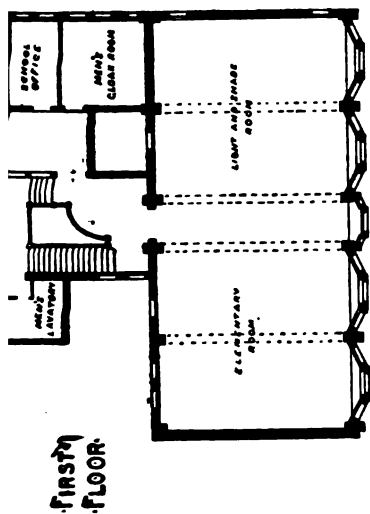
12. That a liberal increase should be made in the endowment and equipment of Queen's College, Belfast, so as to remove the deficiencies which at present hamper its work and hinder its expansion.

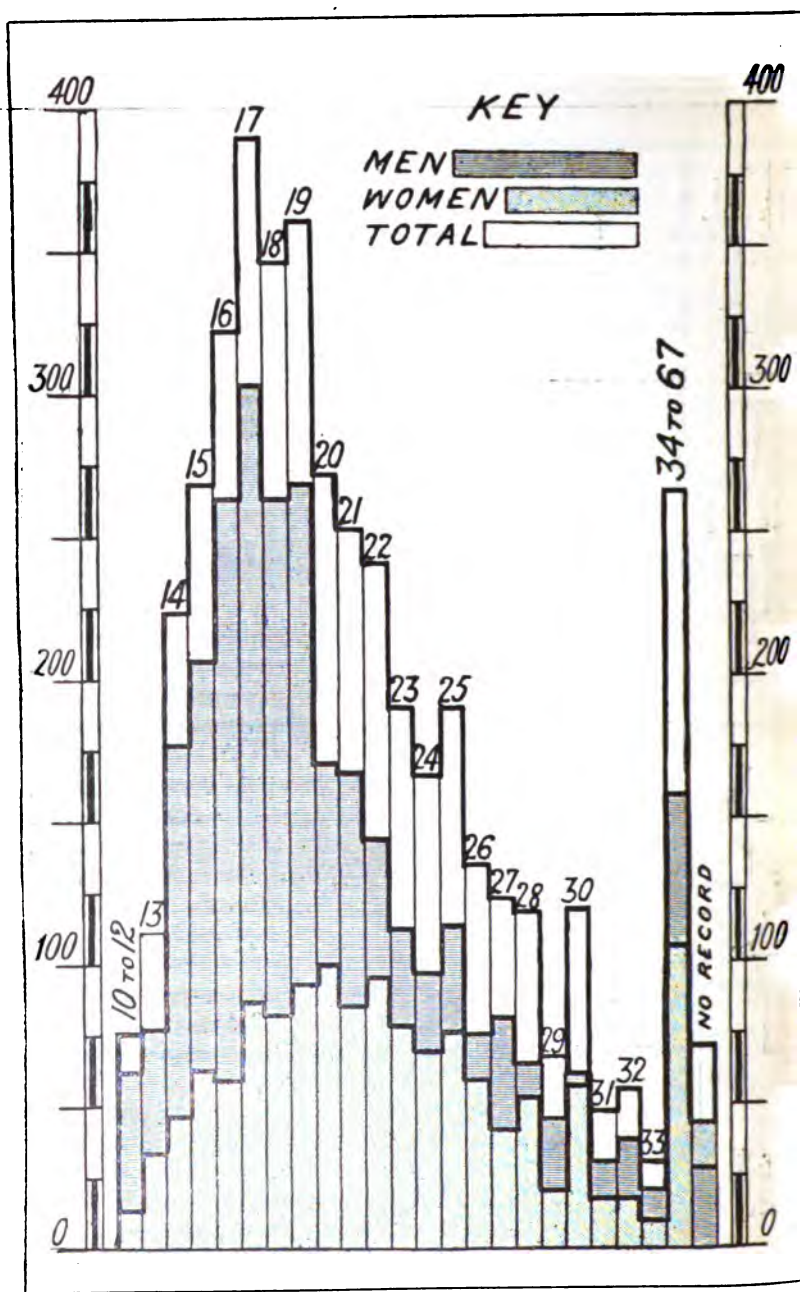
13. That, while we are aware of existing deficiencies in the equipment of the Queen's Colleges at Cork and Galway, we are unable to recommend that any addition should be made to the present endowments of these colleges, until in altered circumstances they give evidence of increased utility.

14. That the Law Schools in the Queen's Colleges at Cork and Galway should be abolished, and that the School of Medicine in Queen's College, Galway, should be limited to the first two years of the medical curriculum.

15. That the degrees of the reconstituted University should be open to women on the same terms as to men.

16. That attendance at lectures in one of the four constituent colleges of the reconstituted University should be required from





THE MUNICIPAL TECHNICAL INSTITUTE, BELFAST (DIAGRAM SHOWING THE AGES OF STUDENTS IN ATTENDANCE). (See page 229.)

all candidates—without distinction of sex—who seek the advantages of university training, due exception being made in the case of matriculated students at present engaged in a course of extern study.

17. That halls of residence for men and for women students should be provided in connection with the two colleges in Dublin and in Belfast.

18. That the duplication of expensive equipment for the teaching of applied science should, as far as possible, be avoided. With this view, courses at the Royal College of Science for Ireland should be recognised as qualifying, in whole or in part, for certain degrees of the University.

19. That provision for higher technical instruction should be made in Belfast, and that the co-operation of the authorities of the Queen's College and of the Municipal Technical Institute for this purpose is desirable.

Mention may be made here that one of the Queen's Colleges is situated in Belfast, its students entering for the examinations and degrees of the Royal University of Ireland. Quite recently conferences have been held between representatives of the Belfast Corporation, the Queen's College and the Belfast Chamber of Commerce, with a view of correlating the instruction given in the Municipal Technical Institute on the one hand and in the Queen's College on the other.

(2) THE NEW SCHEME IN BELFAST.

General Considerations.

Belfast, owing to its large industrial population and the variety and extent of the occupations carried on within its boundaries, is a peculiarly suitable area for a scheme of technical instruction.

The city has a large and steadily increasing population, the present number, as already stated, being about 350,000 persons. Prior to the passing of the Agriculture and Technical Instruction Act its facilities for science, art and technical instruction were of the most meagre character, such institutions as existed carrying on their work under great difficulties owing to scarcity of funds, though it is to be recorded that a distinct measure of success was attained having regard to the many obstacles that were encountered. The institutions in operation during the period referred to were the Working Men's Institute, in which science instruction was given; the Government School of Art; the Hastings Street Technical School; the School of Applied Science and the School of Science. The City Council distributed amongst these institutions a grant

from the borough fund of £800 per annum. Anterior to the year 1899 various attempts were made to secure corporate support on a large scale for the furtherance of technical instruction, but in the absence of aid from Imperial sources it was considered inadvisable to embark on any extended scheme.

Initial Procedure under the Act of 1899.

Immediately upon the passing of the Act of 1899 the Corporation decided to avail themselves of the advantages now offered and at once formed a special Committee of the Corporation to prepare a scheme of technical instruction commensurate with the needs of the community. This Committee is entitled the "Library and Technical Instruction Committee," and have for their Chairman Alderman Sir James Henderson, D.L. On the suggestion of the Department the Corporation also formed two Consultative Committees, one comprising the leading merchants and business men of the city and the other representatives of the various educational establishments. Advantage was taken of the Department's pioneer lecture programme, and a number of public lectures were delivered by the Department's lecturers to introduce the new *regime*. The Corporation, acting on the advice of the Department, gave grants to various schools, it being stipulated that the grants should be used in the purchase of apparatus or for equipping science laboratories. The institutions participating in the grants and the amounts allocated to each are as follows:—

Christian Brothers' School	£400
Royal Academical Institution	£400
St. Malachy's College	£400
Methodist College	£400
Belfast Royal Academy	£300
Hastings Street Technical School	£150
Working Men's Institute	£300
School of Art	£220
Total	£2,570

The five institutions first-named above applied their grants in fitting up and equipping physical laboratories; the other institutions utilised them in the purchase of teaching equipment.

The Municipal Technical Institute.

As none of the available schools were in possession of premises sufficiently large to provide for the new programme of technical instruction, it was decided to erect a suitable building, and, after

extended negotiations, a suitable and very centrally-situated site—rectangular in form and of about 5,440 yards in area—was secured. The next step was to appoint an architect to prepare plans for an institute, and for this important position Mr. Samuel Stevenson, an eminent Belfast architect, was selected. Soon afterwards, viz., in December, 1900, a principal (the present writer) was appointed to act as adviser to the Committee and to put the new scheme into operation.

Early in the year 1901, the question of incorporating with the Technical Institute the existing institutions providing evening instruction was broached, and, after a series of negotiations carried on in a most harmonious spirit by all concerned, the incorporation was successfully arranged. During this time, frequent conferences had been held between the Library and Technical Instruction Committee and the Manufacturers' Consultative Committee regarding the space required by the different departments in the building about to be erected, and, as a result, plans were eventually decided upon and approved by the former Committee. It is worthy of special note that the expert advice and assistance freely given by the Manufacturers' Committee proved of the greatest value in determining the accommodation to be provided.

THE NEW BUILDING.—The site, which is shown on p. 159, is to be bounded on the four sides by wide streets, so that ample light is assured for all parts of the building. The illustration on p. 172 is a perspective view of the Institute as it will appear when completed, and the ground plan of the Institute appears on p. 213. The building is designed in the style of the French Renaissance, is faced with Portland stone and will comprise four floors, the height to the main cornice being 72 ft. The Plenum system of heating and ventilating will be adopted. Altogether, it is confidently anticipated that in the whole of its arrangements the Institute will rank high amongst technical institutions in the United Kingdom. Tenders for the erection of the building having been invited early in 1902, Messrs. Campbell and Sons, of Belfast, were successful in securing the contract at the price of £81,000. Building operations were commenced on the 24th May of the same year. Owing to the unsatisfactory character of the sub-soil, it was necessary to resort to piling in order to obtain a satisfactory foundation. The structure is making steady progress, and the walls are now well up towards the first floor. In the month of November, 1902, the building was sufficiently advanced to permit of the foundation stone being laid, and this function was performed in the presence of a large gathering of leading citizens by His

Excellency the Lord Lieutenant of Ireland (the Earl of Dudley), accompanied by the Countess of Dudley and attended by the Lord Mayor (the Right Hon. Sir Daniel Dixon), Sir James Henderson and the other members of the Corporation.

A PRELIMINARY SCHEME OF INSTRUCTION.—As it was found that the new building could not be ready for some three or four years from the date of accepting the plans, it was decided to put into operation a scheme of technical instruction and to carry on classes in the buildings formerly used by the institutes now merged in the Corporation scheme, as well as in additional premises rented in various parts of the city. Steps were at once taken to draft a programme, to prepare syllabuses, to engage teachers and to draw up a prize and scholarship scheme. A number of scholarships and prizes were given by local gentlemen, and these were supplemented by others given by the Committee.

It was decided, as a beginning, to establish day departments in art and in domestic economy only, and to leave the question of the provision of day science and technical courses to be dealt with at a later period; but a very complete range of evening classes was established covering the departments of mathematics, mechanical engineering, naval architecture, physics and electrical engineering, building trades, plumbing, textile industries, miscellaneous trades and industries, natural science, commerce, domestic economy and art.

An investigation into the educational conditions of the city having shown that there was a great lack of provision for evening continuation school work, it was considered desirable to establish a number of preparatory classes. Six centres, suitably placed in the more densely populated residential areas, were selected for this purpose, the location of these being shown by the plan of the city of Belfast, which is given on p. 214.

The building used by the late Government School of Art being found inadequate as regards space and unsuitable in other ways, new and extremely suitable premises were secured, and these were formally opened by the Marquis of Dufferin and Ava on the 25th September, 1901. The plans of the four floors of the School of Art are shown on p. 221.

In the four central buildings, viz., the Central Technical Institute, the Working Men's Institute Branch, the School of Art and the Hastings Street Branch, the more advanced instruction in science, technology, art and domestic economy is conducted, and the elementary work is carried on in six branch buildings.

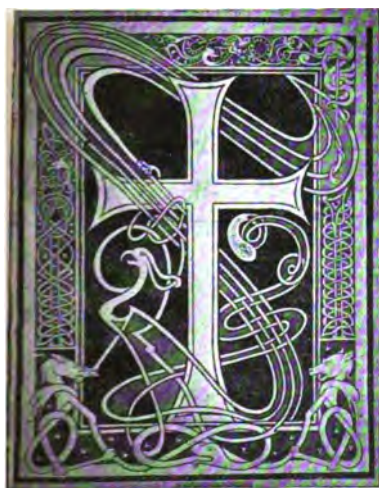
THE FIRST SESSION'S WORK.—The Institute opened its doors on the 30th September, 1901, for its first session.



EXERCISE BY HELEN M. M. JOHNSTON.



EXERCISE BY GILBERT W. TOD.



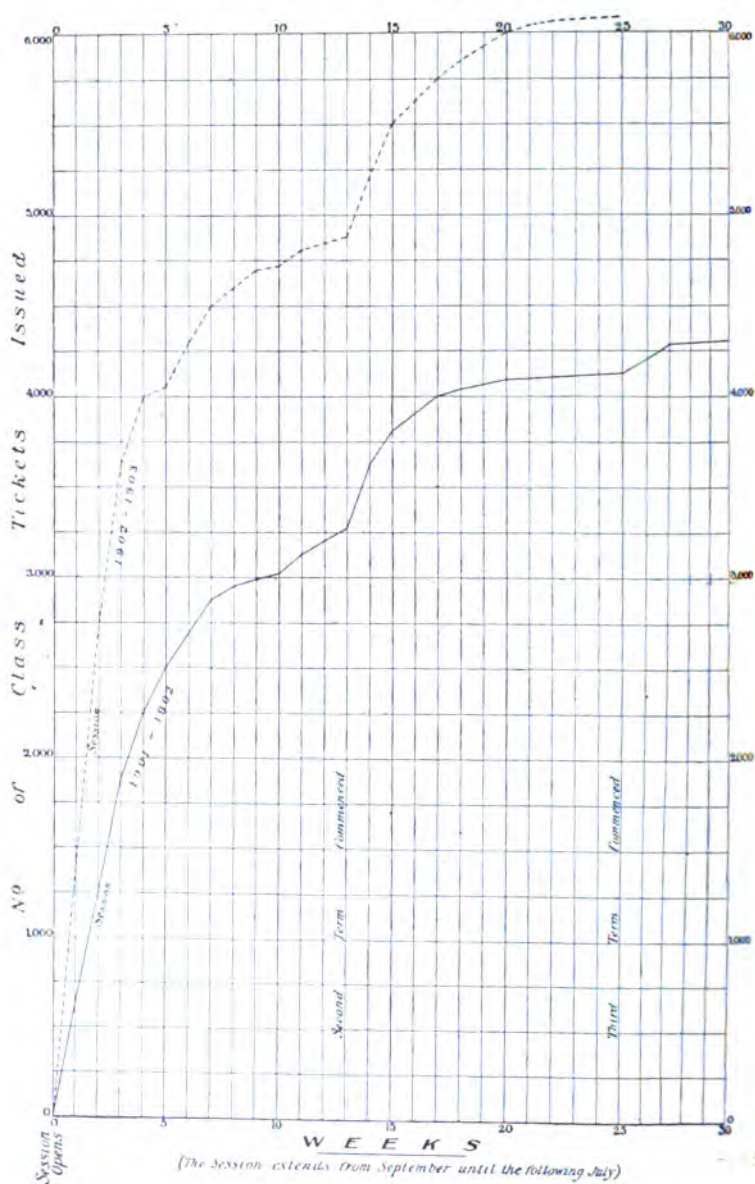
**DESIGN FOR PANEL BY ELIZABETH
M. STEWART.**



**DESIGN FOR BOOK COVER BY J. O'N. BLAIR
(AWARDED BOOK PRIZE, 1902).**

**THE MUNICIPAL TECHNICAL INSTITUTE, BELFAST (DESIGNS IN CELTIC
ORNAMENT MADE IN THE SCHOOL OF ART). (See page 229.)**

Weekly Record of Class Tickets Issued



THE MUNICIPAL TECHNICAL INSTITUTE, BELFAST (DIAGRAM SHOWING THE INCREASE IN THE ATTENDANCE OF STUDENTS DURING THE YEAR 1901-3). (See page 230.)

The response to the provision made by the Municipality was immediate, and within the first month more than 2,000 entries were received for the various classes, a number which steadily increased as the session advanced. As was anticipated, the main difficulty in conducting the classes with the degree of efficiency aimed at was found in the unprepared state of the students, and the wisdom of providing preparatory instruction for those whose general education was imperfect received ample justification. The ages of the students joining the Institute ranged from 13 years to over 60. The numbers at a given age are shown in the diagram which appears on p. 222. A few students below the age of 13 joined the Institute classes, these being almost all in the art section.

As a result of the session's work, a fair percentage of students entered for the examinations of the Board of Education, the City and Guilds of London Institute and the Society of Arts; and, taking into account the fact that for many of the students this was their first session of serious study, the results obtained were of a distinctly satisfactory character.

It deserves to be noted here that most of the classes dealing with trade subjects have been distinctly successful. This result is largely attributable to the enlightened view which the officers of trade societies have taken of the Institute's operations and to the encouragement which the societies have given to apprentices and journeymen to avail themselves of the facilities for improvement provided by the classes. The Bakers' Society and the Stone Cutters' Society have both given prizes out of their funds to encourage the students belonging to their respective trades. A number of employers, notably those forming the Master Plumbers' Association, have also given prizes, and it is hoped that as the benefits accruing from this step are more generally recognised other employers will follow so laudable an example. The illustration on p. 206 shows a part of the bakers' class—viz., the cake ornamentation section, at work in the Central Technical Institute.

In the School of Art special attention is being given to the subject of design as bearing upon the local industries; at the same time the national feeling is not lost sight of, and some excellent work in the Celtic style of ornament has been executed under the direction of Mr. R. A. Dawson, A.R.C.A., Head-master, four examples of which are shown on p. 227.

THE SECOND SESSION'S WORK.—The second session of the Institute opened on the 22nd September, 1902, the course of instruction of the first session having been amplified and improved, though the general

lines of the first prospectus were adhered to. Within the first seven weeks the number of entries for courses of instruction had exceeded the total for the whole of the first session, and, as a consequence, it became necessary to secure additional premises to accommodate the increased numbers. The diagram on pp. 228, comparing the entries in the two sessions, is interesting not only on account of illustrating the increase in numbers but because it brings out the satisfactory feature that the majority of the students joined the classes at a much earlier period than for the first session.

Later in the year, on the 12th December, the first annual prize distribution took place, the prizes being distributed by the Countess Annesley, and an inspiring address delivered by Mr. J. H. Reynolds, M.Sc., Principal of the Municipal School of Technology, Manchester.

Conclusions.

Bearing in mind the foregoing statements, it may be taken that the foundations of technical instruction in Belfast are now thoroughly secure, and all that remains is to build upon these a superstructure worthy of the city. The citizens have shown themselves deeply interested in the scheme, and strenuous efforts are being made to place Belfast in the forefront as regards technical instruction. Of course, much remains to be done. The unprepared state of the students presenting themselves for technical courses points to the pressing necessity for an improvement in the standard of primary education. The leaving age of school children is too low. There is little, or only very inadequate, provision for evening continuation school work outside the classes controlled by the Technical Instruction Committee. There is a pressing need for higher primary schools in which the more capable children leaving the national schools can carry their education further. Until some steps are taken by the Commissioners of National Education or other authority to remedy these defects, the Municipal Technical Institute cannot accomplish its proper work, and an undue proportion of its funds must be devoted to giving instruction which is little more than elementary, a purpose which, of course, is foreign to the object for which its funds were provided. There is also a clear demand for a day technical department in the Technical Institute. Proposals are now under consideration for the establishment of such a department. It is hoped and indeed fully expected that it will be found possible to frame these proposals in such a manner as to avoid overlapping with the programmes of the secondary schools or of the local University College, and that thus waste of energy and of funds will be obviated.

FRAS. C. FORTH.

APPENDIX.**BIBLIOGRAPHY.****Primary Education.**

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HENRY'S DUAL SCHOOL, BLACKFORD (FIRST YEAR BIOLOGY CLASS—AT WORK ON PRIMITIVE). (See page 239.)

IV.—THE TEACHING OF BIOLOGY IN A SECONDARY SCHOOL.

By G. H. LEADER, B.Sc. (HONS.), LOND., F.C.S., SENIOR
SCIENCE MASTER, SEXEY'S DUAL SCHOOL, BLACKFORD.*

INTRODUCTION.

In most secondary schools nowadays a very fair amount of time is devoted to the study of natural science, but, in the main, attention has been directed to physics and chemistry rather than to biology. I have thought, therefore, that an account of the work now being done in this latter subject at Sexey's School, Blackford, Wedmore, Somerset, might be interesting to teachers, more especially to those in county schools and in schools of science in which biology is a possible subject of instruction.

While not in any way desiring to depreciate the value of chemistry and physics as subjects of school instruction, I think it may be shown that the study of biology has at least an equal claim to a place in the curriculum of a secondary school, by reason of its educational value to the pupils—and here I am meaning not young men or women but children, such as I have to deal with, whose average age in the highest form is not more than 15.

Such work (1) provides excellent training for eye and hand, involving exercise not only in the power of observing, quickly and accurately, what is placed before the pupil, but also in representing the same both verbally and in the form of drawings—few will be found to dispute the value in every-day life of the power to represent things accurately by means of picture or diagram; (2) gives, if properly conducted, suppleness to wrist and delicacy of touch to fingers, and this is not by any means to be despised; (3) quickens an intelligent interest in the form, structure and habits of living things, thereby adding much to the pleasures of life. Moreover, biology is a subject which, when school life is over, may be continued at a relatively small cost compared with that attending physics or chemistry, the expense associated with these latter causing their study to close, for the majority, with the end of school life.

* A descriptive account of this school together with a view of the buildings and a detailed plan were given in "The Record" for January, 1901. The locality is of a distinctly rural character, and the school has served to supply for the boys and girls of a scattered population a good secondary education conducted upon the principle of co-education.

We have at Blackford a school of science under the Board of Education in which the course for rural schools is being taken. At present the work falls into three main divisions, namely, that of the first, second and third years. Biology is taken in each year. I shall give a very short summary of what is done in this subject during these three years, with such details as seem to me to be necessary to convey to the reader the scope of the work.

DESCRIPTION OF THE TEACHING.

First Year.

The first year's course starts with the reproduction of plants, (a) from seeds, (b) from underground stems (potato, mint, raspberry), while artificial means of reproduction (cuttings, budding, grafting) are touched upon. Then follow some lessons on the various forms of fruits as exhibited by the rose, pea, bean, wallflower, apple, tomato, etc. Next comes a series of lessons on germination—the pea, turnip, barley, maize and bean, grown from seed in the laboratory, are described and drawn at various stages. During the course valuable lessons concerning growth under various conditions are given, the demonstration plots attached to the school being open at all times to the pupils. (See illustration on p. 257.)

Stems are next taken, and the meaning of "rings" in the trunk of trees, as indicating years of growth, is explained in an elementary way; while the support available for weak stems receives treatment also, the teaching being aided by specimens. Leaves are then examined—their varying shapes studied, the presence of stomates demonstrated and also shown with the microscope. Root pressure in stem and leaves is then made clear by means of coloured solutions and the presence of xylem is ascertained. After this comes a course of lessons on the parts of flowers; common examples are taken, described and drawn, needles and lenses being used as accessories to observation. The subjects are somewhat bound down by the time of year, but where possible the similarity between flowers, such as those of the pear and hawthorn, is noted, without going very deeply into the subject of natural orders.

In all lessons, where possible, the specimens in the botanical garden attached to the school are first shown to the pupils; at the next lesson they themselves bring their own specimens and draw and describe under the direction of the teacher.

A course of lessons on insects follows. If possible, we obtain as a start, a sufficient number of cockroaches for each pupil to have a specimen. The more important external features alone are



SEXEY'S DUAL SCHOOL, BLACKFORD (SECOND YEAR BIOLOGY CLASS—AT WORK ON THE FROG). (See page 240.)



SEXNEY'S DUAL SCHOOL, BLACKFORD (THIRD YEAR BIOLOGY CLASS—
DISSECTION OF THE DOG-FISH). (See page 241.)

noted; a comparison is made with spiders, and in regard to the number of legs with the butterfly and bee. These lessons close with an account of the life history of the white cabbage butterfly and the onion fly. Then there is a lesson on the colour of flowers, with special reference to insects. The course closes at the end of June, the last month being occupied with the examination and description of some of the more commonly occurring wild flowers. (See illustration on p. 234.)

The above is a brief outline of the work done in the first year. It may be described as "nature-study" rather than an attempt at strictly scientific work. It is found (*a*) to be interesting to the pupils (a mixed class of 29, the average age being about 13), (*b*) to afford valuable opportunities for quickening the powers of observation and (*c*) to serve also as exercise in the use of needles, scalpels and lenses.

Second Year.

This course, which is given to a mixed class of about 20 pupils whose average age is about 14, comprises lessons on the following subjects:—the general characteristics of the frog and its life history, the various stages being noted from specimens, beginning with frog spawn. It is, however, found difficult to successfully rear the animals, as under the conditions prevailing in the school's laboratory the rate of mortality is very great in the later tadpole stages. This work is followed by a course of about three lessons on birds—a pigeon is taken as a general type, but its external characteristics alone are touched upon, with the exception of the skeleton, of which we have a well-mounted example.

At this stage it is not found practicable to provide each pupil or pair of pupils with a specimen.

Details are given of the size and colour of eggs, the time of incubation and such other matter as is likely to be useful or interesting to the pupils. It is hoped, in the coming year, to provide a typical collection of birds' eggs for the school museum.

A set of lessons on the skeleton of mammals follows those on birds; complete skeletons of the rabbit and fox, the skull of the dog and its first two cervical vertebræ (useful on account of their size), together with good diagrams of the human skeleton, form the teaching material on which the lessons are based.

Elementary lessons are subsequently given on circulation, digestion, respiration and the nervous system. Here, from the necessity of the case, we are much restricted to diagrams; but certain specimens are obtained from the local butcher (*e.g.*, the heart and lungs of the sheep), enabling us to deal with the heart

in a practical manner and to conduct experiments illustrative of respiration, while in lessons on digestion one relies, at this stage, on diagrams only, though it is probable that this might be improved upon. I may add that I have found it desirable to personally obtain specimens so as to ensure their being in a condition suitable for teaching purposes.

At this period a fair general idea of the mechanism, organs and functions of a living animal will have been gained, and the latter part of the second year's course becomes of a more scientific character. The object-lesson type of teaching now entirely disappears from the course.

The pupils are now arranged in pairs and provided with scissors, forceps, scalpels, seekers, lenses and dissecting dishes. To each pair of pupils an earthworm is given. The pupils note its external characteristics, open it, examine its gut, its circulatory and nervous system, noting the position of the nerve cord and the absence of backbone, as separating this creature from the bird, rabbit, etc. The pupils are asked to suggest how the earthworm breathes; one pupil, a bright little girl, remarked recently, "Please, sir, it breathes through its bristles." Though this was not a correct answer, it was not a bad one, and showed thought and some intelligence.

A set of diagrams and also a set of actual dissections, mounted permanently and preserved in spirit, are provided by the teacher; these take some time and trouble to prepare but are extremely useful as aids to teaching. (See illustration on p. 242.) The children's own work is surprisingly good, and their dissections compare favourably with those prepared by much older students in college laboratories.

This course is completed by a series of lessons on the frog; one specimen is provided for each pair of pupils—the nervous, alimentary, respiratory and circulatory systems are dissected and drawn. This year the quality of the practical work on the frog has been very good. I believe this result to be in a large measure due to the preliminary training received by the pupils during the first year's course in the use of needles, lenses and scalpels. (See illustration on p. 237.)

The pivot on which the whole of this part of the course rests is the comparison of the various systems with the diagrams, used earlier, on digestion, circulation, respiration and the nervous system.

Third Year.

This is now a small class consisting of seven boys whose average age may be stated to be a little over 15. The work is a continuation of the second year's course, although the teaching is somewhat more advanced in character.

The rabbit is studied exhaustively—the nervous, circulatory, respiratory and digestive systems are dissected out, described and drawn.

In this class the students no longer work in pairs, but each pupil is provided with a specimen.

The general functions of the digestive glands of mammals are illustrated by experiments performed with material taken from the gut of the pig supplied entire by the local butcher. Extracts are obtained from the various glands and their digestive functions examined and verified by chemical tests.

The cray-fish and mussel are utilised as further types of invertebrates, while the "lung" of the snail is examined and contrasted with the gills of the mussel. The course concludes with the dog-fish, which is taken as a general type of fish and thoroughly dissected and contrasted with previous creatures examined during the course. (See illustration on p. 238.)

CONCLUSION.

This concludes our course of three years' teaching of biology. The time spent on the subject in each year is three hours per week, and the cost of material compares favourably with the outlay needed for the instruction in practical chemistry.

It may be contended that, except in its earlier stages, this is not "nature-study." I think it might readily be shown that this would not be really true. The question may be asked—can the interest of pupils be maintained during such a course? I should reply that we find the biology lessons the brightest in the week, and that absence from them is a very rare occurrence—in fact, the biology days are eagerly anticipated by the pupils.

It has been the aim of these lessons to convey to children the idea of an animal as a living machine much more complex in its details than the most intricate of human contrivances, while the æsthetic side in animal life has not been forgotten. If this result has been achieved it will be of permanent value to the students; for in the obtaining of it a vast amount of excellent mental training has been provided, leading the observing eye to see and the ready mind to trace similarity amid difference, while the not less ready hand has been assisted to draw and thus to describe whatever has been observed.

Finally, if these remarks should, in any small degree, lead to a wider teaching of biology in our secondary schools, I shall have achieved the main object of the writing of this article.

G. H. LEADER.

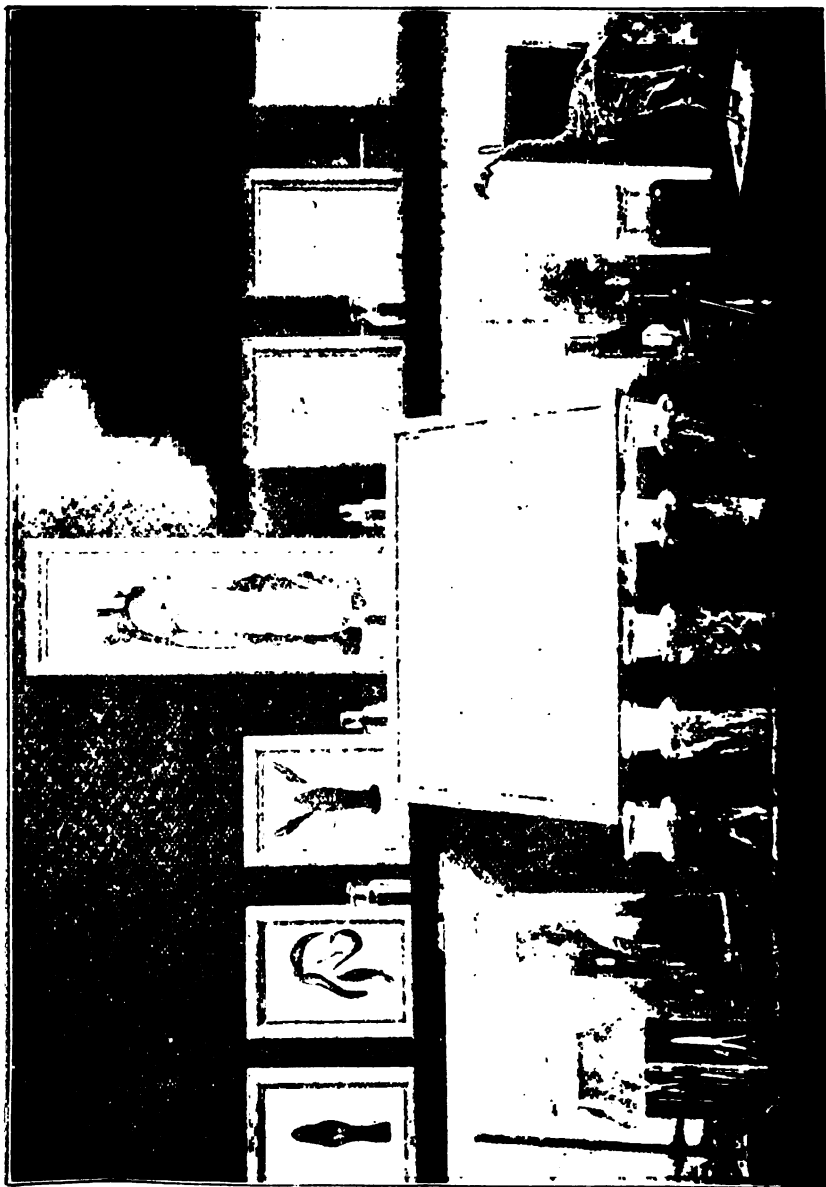


FIGURE 1. A TYPICAL SET OF APPARATUS FOR TEACHING BIOLOGY—DISSECTIONS AND DIAGRAMS. (See page 240.)

V.—MISCELLANEA.

THE OFFICIAL REPORT OF THE
NATURE-STUDY EXHIBITION, 1902.*

By far the greater part of the volume containing the report of the Nature-Study Exhibition held last year is occupied by the addresses and papers which were contributed to the conferences arranged in connection with the undertaking. As these have been exhaustively discussed already by Mr. Wilfred Mark Webb,† it will not be necessary to dwell upon them here. We might, however, point out in passing that in the brief but useful summary which appears of Professor Miall's address some of his more sweeping assertions are not to be found. In other papers also which were not written previous to their delivery the authors have in similar fashion judiciously modified their statements.

There are essays to which Mr. Webb would appear to do scant justice, but these trench possibly upon matters which, though extremely valuable in themselves, bear less directly upon the "progress and interpretation" of "nature-study."

Turning to the general parts of the book, we find, in the introduction by Sir John Cockburn and Mr. J. C. Medd, that the attitude taken up in "The Record"‡ has been followed. The scope of and materials for "nature-study" have not been in any way defined, and the matter, it is said, must not be looked upon as a new subject, but as a more efficient means of imparting general knowledge. The methods by which the work is being done are carefully set out in the report of the Executive Committee, which we shall mention later. Very rightly, the judges (Mr. A. D. Hall and Professors Miall, Lloyd Morgan, Arthur Thompson and Robert Wallace), in their remarks, dwell upon the work of special excellence, with a view to future progress. In all, there are nine

* Blackie and Son, 1903; price, 2s. 6d.

† "The Record of Technical and Secondary Education," October, 1902, pp. 387-426.

‡ October, 1902, Editorial Note, pp. 371-2.

sub-headings to this the most important part of their report, and these we will briefly review, one by one :—

(1) **Studies on Living Things.**—The observation of living creatures is put first, and few would have this relegated to a secondary position. It is allowed that in scientific work the study of a dead object may be important ; but it is maintained that in the more general training, for which we look to “nature study,” the consideration of living things is of much more value. The paragraph, which we are discussing as it proceeds, is most suggestive of Professor Miall’s views, and, indeed, bears a strong resemblance to his remarks in “The Educational Record,”* for in both places the usefulness of studying the nutrition of green plants by the method of water culture is emphasised. Our readers will allow that such work is of little value if the pupils do not carry out the necessary weighings and measurements themselves, and this surely entails something beyond the scope of that general observation which we look upon as “nature-study.” In fact, it is a scientific inquiry of a special character, and it is open to the objection that it has to be carried out under the most artificial conditions. There is plenty of other work that can be done, and, indeed, that has been done in the garden of the same school which exhibited the water cultures and to which such criticisms cannot be applied. The dated drawings of seedlings in various stages of development, mentioned by the judges, may be referred to in this connection.

(2) **Seasonal Studies.**—There is no need to enlarge upon the advantages of these, but we may refer to the danger suggested of keeping seasonal records which are merely confined to the occurrence of an animal or plant, and add nothing to our knowledge of its life and ways.

(3) **Regional Surveys.**—The judges are right in characterising scientific botanical surveys as being upon a higher plane than those we would advocate in “nature-study.”

(4) **Nature Diaries.**—Bald observations and the addition of matter which is not the result of personal investigation and work are condemned under this heading.

(5) **School Gardens.**—One judge (Professor Wallace) dissents from the recommendation that school gardens should be encouraged. To our mind, the garden which is a part of the “nature-study” work of a school should be differentiated from the useful but less

* Vol. XVI., new series, No. 12 (October, 1902), p. 138.

general educational type in which it is primarily sought to teach gardening.

(6) **Vivaria and Aquaria.**—Somewhat grudgingly, it seems, the judges say that they have been able to commend the exhibition of living animals, and this reminds us that Professor Miall, in his remarks, urged that plants alone should be studied. There is a tendency, rife now-a-days, to exalt animals and to carry so-called kindness to sentimental extremes which leads to the manufacture of cranks.

(7) **School Rambles.**—Opportunity is taken in this paragraph to enlarge upon the superiority of home-made illustrations—in this case, lantern slides made from photographs taken on school journeys—over bought material. The remarks wander off to *individual scientific work* based upon practical problems.

(8) **Simple Apparatus.**—As this is mentioned in connection with the “demonstration of scientific facts,” and as it is not in line with “nature-study” proper, we pass it over.

(9) **The Scope of “Nature-Study.”**—This hardly sounds as if it should be a sub-division of “work of special excellence,” but occasion is taken to praise exhibits which implied an appreciative outlook upon the whole environment, including its æsthetic and practical aspects.

After giving a list of their awards, the judges briefly characterise some lines of work which appear less valuable than others which are feasible and well known. Among the former are the copying of diagrams and drawings from books and the making and exhibition of collections which have no special purpose or local connection.

We come now to the report of the Executive Committee of the Nature-Study Exhibition Association, and in this report, the authorship of which may be mainly attributed to Mr. R. Hedger Wallace and Mr. Wilfred Mark Webb, the scientific work is carefully separated from what is economic and what can rightly be considered “nature-study” in the general educational sense. All the methods of conducting observational lessons, of carrying on field work and of making records of “nature-study” represented in the exhibition are considered, while in the descriptions of work which have been chosen for comment the details of greatest use in interpreting “nature-study” or undertaking its introduction have been italicized.

There is a movement on foot to profit by the results of the exhibition, and we trust that the scheme which has been issued recently by the Home Counties Nature-Study Exhibition may afford further help in the direction of establishing sound educational procedure.

INTERMEDIATE EDUCATION IN WALES.

OUTLINE OF PENSION SCHEME FOR TEACHERS.*

Retiring Age.

(1) (a) Retirement shall be compulsory at the end of the term in which the age of 65 is attained.

(b) In the case of a teacher who is under the age of 40 at the date of first contributing to the pension fund, the appointing authority shall have the option of calling upon him to retire at any time after attaining the age of 60, and before attaining the age of 65, provided that by the creation of a pension in consequence of such retirement the total amount payable to pensioners between the ages of 60 and 65 is not made to exceed 50 per cent. of the salaries payable to teachers between the ages of 60 and 65.

Amount of Pension.

(2) In the above cases the amount of the pension shall be 50 per cent. of the average salary received during the last five, ten or 15 complete years of service, whichever shall give the greatest result.

Contributions of Teachers.

(3) The contributions of teachers shall be according to the following scale :—

Age :	Salaries greater than					
	£100	£200	£300	£400	£500	..
Age :	But not greater than					
	£100	£200	£300	£400	£500	..
Under 30	2½%	2½%	3 %	3½%	4 %	4½%
30 to 39	2½%	3 %	3½%	4 %	4½%	5 %
40 to 49	3 %	3½%	4 %	4½%	5 %	5½%
50 and over	3½%	4 %	4½%	5 %	5½%	6 %

In reading this scale the age must be understood to be the age at the date of the first contribution to the pension fund ; the salary, however, is the actual salary at the date of each successive contribution.

Contributions of County Governing Bodies.

(4) The contributions of the County Governing Bodies shall be on a scale 60 per cent. higher than the scale for teachers.

* See also our remarks in the Editorial Notes.

Return of Contributions.

(5) All contributions paid by the teacher shall be returned in full, without interest, in the following cases :—(a) If after paying at least two years' contributions the teacher ceases to serve in a Welsh intermediate school, and is not qualified for a pension ; or (b) on the death of teacher while in the service of a Welsh intermediate school.

(6) In the case of a pensioner's death, if the amount of the pension received is less than the amount of contributions paid by the teacher, the difference shall be returned to the pensioner's representative, such representative to be settled by the managers of the fund, unless nominated for the purpose by the deceased pensioner.

(7) Contributions paid by the County Governing Bodies shall in no case be returned.

Pension on Permanent Incapacity.

(8) (a) On retiring through permanent incapacitation after paying ten years' contributions, a teacher entering the service of a Welsh intermediate school after the date of the commencement of this scheme shall be entitled to a pension of ten-sixtieths of the average salary received by him during the preceding five, ten or 15 complete years of service, whichever shall give the greatest result. If eleven years' contributions have been paid, the pension shall be eleven-sixtieths ; if twelve, the pension shall be twelve-sixtieths ; and so on up to 30 years' contributions, when the teacher may retire, irrespective of age, if permanently incapacitated, on one-half of the average salary received by him during the last five, ten or 15 complete years of service, whichever shall give the greatest result.

(b) On retiring through permanent incapacitation for teaching after paying one year's contribution, a teacher already in the service of a Welsh intermediate school at the date of the commencement of this scheme shall be entitled to a pension of one-sixtieth of the average salary received by him during the last five, ten or 15 complete years of service, whichever shall give the greatest result. If two years' contributions have been paid, the pension shall be two-sixtieths ; if three, the pension shall be three-sixtieths ; and so on up to 30 years' contributions, when the teacher may retire, irrespective of age, if permanently incapacitated, on one-half of the average salary received by him during the last five, ten or 15 complete years of service, whichever shall give the greatest result.

(c) Permanent incapacitation for teaching shall be understood to mean such a permanent breakdown of physical or mental health as to render the teacher, in the opinion of the managers of the fund, incapable of gaining a suitable living, every such case being subject to reconsideration from time to time.

(d) If the managers of the fund decline to grant or continue a pension under this clause, they may, at their discretion, make a return of the teacher's contributions, without interest, subject to deduction of payments actually made to him out of the fund.

Actuarial Investigations.

(g) An actuarial investigation into the state of the fund shall be made at intervals of five years, and power is reserved to the managers of the fund to adjust the benefits, the contributions and the retiring age in accordance with the results of the various investigations, provided that no larger contributions than those herein specified shall be required from County Governing Bodies without their consent. But in no case shall any increased benefits be granted to teachers who have contributed to the fund for less than 25 years, all profit arising from resignations, interest earned over three per cent., or other sources, being reserved for the benefit of those who contribute for 25 years or more, and being applicable at the discretion of the Central Welsh Board to increase the pensions, or to lower the age of retirement, either of all teachers or of women teachers, or in other ways.

Optional Retirement at 55.

(10) (a) Teachers will be allowed, at their option, to retire at anytime after the age of 55 at a rate of pension calculated according to the age of retirement, so as to be actuarially equivalent to the benefits provided by the foregoing scheme, after making allowance for the contributions payable by and on behalf of the teachers, and after they have contributed to the fund during a period of not less than 15 years.

(b) It will be within the discretion of the managers of the fund to decline to grant or continue a pension under this clause, if the teacher should exercise his profession in a manner which, in their opinion, may be inimical to the interests of any school under the Welsh Act, every such case to be subject to reconsideration from time to time and to full notice and opportunity for defence being afforded to the pensioner.

Col.

NOTES.—It is perhaps necessary that it should be pointed out that the calculations were made on the basis of the salaries payable in the

in November, 1899, and on the assumption that the scheme came into operation as at 1st January, 1902.

The additional cost of providing pensions to teachers who are over the age of 40 at the date of the commencement of the fund falls upon the counties, and does not in any way fall upon the teachers under the age of 40.

The contributions of the teachers amount to about £2,200 per annum, of which £548 is payable by teachers over the age of 40. The contributions of the counties amount to about £3,500 per annum.

If the commencement of the scheme should be postponed to 1st January, 1903, it is estimated that the contributions of the counties will have to be increased to seven-fourths of the teachers' contributions, and will amount to about £3,800 per annum.

PUPIL-TEACHERS' CENTRES AT SECONDARY SCHOOLS.

THE SCHEME IN WILTSHIRE.

In the last number of "The Record" reference was made (on pp. 6, 149-51) to the successful work undertaken in Hampshire and Nottinghamshire at Pupil-Teachers' Centres established at secondary schools. The following scheme embodies the definite regulations formulated by the Wiltshire County Technical Education Committee for the conduct of similar Centres. The scheme received the approval of the County Council on the 5th August, 1902, and has been welcomed in all parts of the county.

(1) That it is desirable that the instruction of candidates and pupil-teachers in elementary schools should be conducted as far as possible in connection with the secondary schools in the county.

(2) That a Local Committee desiring to undertake the instruction mentioned in paragraph 1 must submit before the 15th day of September an application and time-table for the approval of the County Committee. The time-table must provide instruction in all the subjects required for the King's Scholarship Examination except reading, recitation and needlework, and for at least nine hours' instruction per week before one p.m. on Saturdays and five p.m. on other week days.

(3) That the County Committee will be prepared to approve applications for payment of the whole or part of the travelling expenses of the teachers receiving instruction.

(4) That for each teacher attending a course of instruction the County Committee will make an annual grant in aid of the instruction to the Local Committee at the following rates:—

£5 per head for the first 20 teachers;

£2 10s. per head for the second 20 teachers;

£1 5s. per head for all teachers above the first 40.

A deduction will be made from the grant in the case of irregular attendance or of unsatisfactory progress.

(5) That, in the case of a pupil-teacher who has been in attendance for a third-year course in a secondary school approved by the Board of Education under Clauses XI. to XXIII. of the Secondary School Regulations, the term of apprenticeship should, as a rule, be reduced from three to two years.

(6) That candidates and first year pupil-teachers in respect of whom the grant mentioned in paragraph 4 is paid shall be ineligible for county grants in any other classes except drawing.

A summary of the numbers of pupil-teachers in attendance at the commencement of the current session at the various Centres in the county is given below:—

Centre.	Numbers in Attendance.		Totals.	
	Boys.	Girls.		
Bradford	—	11	11	} Grand Total. 318
Calne	2	16	18	
Chippenham.....	3	18	21	
Devizes	3	13	16	
Marlborough ...	2	7	9	
Salisbury	11	37	48	
Swindon	17	109	126	
Trowbridge	10	36	46	
Warminster	—	9	9	}
Westbury	2	12	14	

The grants, with the exception of those to Salisbury and Swindon, are paid according to the approved scheme, the capitation payments varying from £5 to £1 5s. in accordance with the number of teachers in attendance (see par. 4 of scheme above). At Salisbury, the Pupil-Teachers' Centre is under the control of a voluntary committee consisting of school managers, etc., and not under the Local Committee recognised by the County Committee; consequently it does not receive the capitation payments, but by the

request of the Local Committee, the grants are made for technical subjects only, and not for other subjects, such as geography, school management, etc. At Swindon the School Board are responsible for the instruction.

In view of the facts that ample provision is now made in Wiltshire for the instruction of pupil-teachers and that their travelling expenses to the Centres are defrayed by the Technical Education Committee, it is hoped that better results generally, as well as at the King's Scholarship Examination, will be obtained not only by town teachers but also by those residing in the rural districts.

THE EDUCATION (LONDON) BILL, 1903.*

TEXT OF THE MEASURE.

A Bill to extend and adapt the Education Act, 1902, to London.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

Application of Education Act, 1902, to London.

1. The Education Act, 1902 (in this Act referred to as the principal Act), shall, so far as applicable, and subject to modifications made by this Act, apply to London.

Education Committee.

2. The Education Committee of the Local Education Authority shall be constituted in manner provided by the First Schedule to this Act.

Powers of Borough Councils.

3.—(1) The Council of each metropolitan borough shall be the managers of all public elementary schools provided by the Local

* In the Editorial Notes on pp. 161-3 reference is made to this measure and to certain amendments passed by the House of Commons. But since the Editorial Notes were written, further amendments, proposed by the Government and involving *inter alia* the omission of Clause 2, have been accepted

Education Authority within their borough, and, subject to any general directions given by the Local Education Authority and to the power of that Authority to determine the number, qualifications and salaries of teachers, shall exercise and perform the powers and duties of management as respects those schools (including the power of appointing and dismissing teachers in those schools and the custody of the buildings).

If any question arises whether any power may be exercised or any duty is to be performed by the Council of a metropolitan borough as a matter of management under this Section, that question shall be determined by the Board of Education, and if at any time the Local Education Authority satisfy the Board of Education that the Council of any metropolitan borough have failed properly to exercise or perform their powers and duties under this Section, the Board may, by Order, enable the Local Education Authority to take over from the Council those powers and duties for such time and subject to such conditions or exceptions as the Board determine.

(2) The site of any new public elementary school to be provided by the Local Education Authority being a site within the area, which in the opinion of the Local Education Authority will be served by the new school, shall (subject to compliance with such conditions as may be made by that Authority with respect to the amount available for the purchase of the site) be selected by the Council of the metropolitan borough in which the area is situated, or, if that area is comprised in more than one metropolitan borough, by the Councils of those boroughs jointly.

(3) The Council of a metropolitan borough may, if they think fit, exercise any of their powers under this Section, and also any powers which may be delegated to them by the Local Education Authority under the principal Act, or which they have as minor Local Authority under that Act, through a Committee or Committees appointed by them consisting either wholly or partly of members of the Council.

Modification of Principal Act and Interpretation.

4.—(1) The modifications of the principal Act set out in the Second Schedule to this Act shall have effect for the purposes of this Act.

2. The expression "metropolitan borough" in this Act shall include the city, and the expression "Council of a metropolitan borough" shall include the Common Council.

Commencement, Repeal and Short Title.

5.—(1) This Act shall come into operation on the appointed day, and the appointed day shall be the *first day of May*, 1904, or such other day, not being more than twelve months later, as the Board of Education may appoint, and different days may be appointed for different purposes and for different provisions of this Act.

(2) In addition to the repeals effected by the principal Act, the Acts mentioned in the Third Schedule to this Act shall be repealed to the extent specified in the third column of that Schedule.

(3) This Act may be cited as the Education (London) Act, 1903, and the Education Acts, 1870 to 1902, and this Act may be cited as the Education Acts, 1870 to 1893.

SCHEDULES.**FIRST SCHEDULE.****Constitution of Education Committee.**

(1) The Education Committee shall as ordinarily constituted consist of 92 members, of whom 36 shall be persons who are members of the Local Education Authority, appointed by that Authority; 31 shall be persons who are members of the Councils of metropolitan boroughs, appointed by those Councils, the Common Council and the Council of the City of Westminster each appointing two members, and each of the other metropolitan boroughs appointing one member; and 25 shall be appointed by the Local Education Authority in accordance with a scheme made by that Authority and approved by the Board of Education.

The scheme shall provide for the appointment of those members in accordance with paragraphs (b) and (c) of sub-section three of Section 17 of the principal Act, and sub-sections six and seven of Section 17 and Section 21 of that Act (which relate to the making of schemes) shall apply with respect to any such scheme as they apply with respect to a scheme for the constitution of the whole Education Committee.

(2) On the first Education Committee there shall be five supernumerary members, selected by the Local Education Authority from among the members of the London School Board, but those supernumerary members shall cease to hold office on the expiration of a period of five years from the date of the constitution of the first Education Committee, and any vacancy in their number occurring by death, resignation or otherwise shall not be filled up.

SECOND SCHEDULE.

Modifications of the Principal Act.

(1) References in the principal Act to the Council of a borough shall not be construed as references to the Council of a metropolitan borough, except—

(a) In paragraph (a) of Section 20 (relating to arrangements between Councils), in sub-section two of Section 24 (relating to interpretation) and in paragraph nine of the Second Schedule; and

(b) As respects the borough of Woolwich, so far as is necessary to enable the Council of that borough to make any contribution which they are authorised to make under Section 19 of the London Government Act, 1899.

(2) The provisions of Section two of the principal Act, as to limit of rate, shall not apply.

(3) Sub-section one of Section six of the principal Act (relating to the management of schools), and so much of sub-section one of Section twelve of that Act (relating to the grouping of schools under one management) as enables the Local Education Authority to group public elementary schools provided by them, shall not apply.

The provisions in the division headed B. of the First Schedule to the principal Act shall not apply to the Council of a metropolitan borough.

(4) Sub-sections three and five to eight of Section 17 of the principal Act (relating to Education Committees), and Section 21 of that Act, shall not apply except so far as they are applied for the purposes of the First Schedule to this Act.

(5) The provisoes to sub-section one of Section 18 of the principal Act (relating to expenses), and sub-section two of Section 13 of that Act (relating to endowments), shall not apply.

(6) The words "a County Council" in Section 19 of the principal Act (which relates to borrowing) shall, as respects borrowing by the Local Education Authority, be construed as if they were "the London County Council."

(7) Sub-section seven of Section 23 of the principal Act shall be read as if the following words were added to it, namely, "and "the office of a teacher in a school provided by the Local "Education Authority shall be deemed to be an office in the gift "or disposal of the County Council, and, as respects any school "managed by the Council of a metropolitan borough, a paid office "under the Council of that borough."

(8) Section 27 of the principal Act (relating to extent, commencement and short title) shall not apply except so far as

sub-section three of that Section is already applicable to London, and the words "the appointed day" shall be substituted for "the 26th day of March, 1904," in that sub-section.

(9) The Treasury shall be substituted for the Local Government Board in paragraph 6 of the Second Schedule to the principal Act.

(10) References in the principal Act to the passing of that Act shall be construed as references to the passing of this Act.

THIRD SCHEDULE.

Enactments Repealed.

Session and Chapter.	Short Title.	Extent of Repeal.
33 & 34 Vict. c 75.	The Elementary Education Act, 1870.	The definition of "metropolis" in Section three. Sections 37, 38 and 39. Section 58. The Third Part of the Second Schedule and the Fifth Schedule.
36 & 37 Vict. c 86.	The Elementary Education Act, 1873.	Section 16.
48 & 49 Vict. c 38.	The School Boards Act, 1885.	Section two.

VI.—REVIEWS.

NOTES UPON LOCAL ADMINISTRATION IN VARIOUS DISTRICTS.*

Durham.—THE RESULTS OF TWELVE YEARS' WORK.—Some very striking facts as to the results that have followed the policy pursued by the County Education Committee during the past twelve years have been compiled by the Secretary (Mr. J. A. L. Robson). These are here presented *mainly in his own words*, with the addition of other and fuller information upon certain points which the report supplies elsewhere.

In the first twelve months after the passing of the Act of 1890 only a small part of the Residue Grant was expended (a) in giving lectures of a pioneer character and (b) in paying the travelling expenses and fees of teachers on Saturdays. When it appeared likely that the Grant would be permanent, it was determined to organise and carry out a county scheme, but systematic work was not commenced until the middle of 1892. From the year 1890 onward the funds derived under the Act, which have amounted during the twelve years to over £170,000, although not always expended, have been appropriated for the purposes of technical instruction; but it seems that Durham receives the smallest amount per head of population of any English county. Under the Technical Instruction Acts rate-aid has been provided by ten out of the 61 urban districts to supplement county grants made from the Residue Grant. From 1892 an endeavour has been consistently made, and with success, to co-ordinate the various institutions then existing. The scattered, disconnected and, in some districts, antagonistic interests have been difficult to deal with. Under the early *régime* classes sprang into existence, as a rule, through the efforts of some teacher who arranged a voluntary committee to satisfy the regulations of the then Science and Art Department, but the whole of the financial part was farmed by the promoter. It was not unusual to have two, three or more "local committees" in one township, in many cases with rival classes in the same subjects. These "vested interests" were very difficult to control, but eventually all art and science evening classes were brought within the county scheme and were managed by one approved committee for each district. The Board of Education then recognised the County Committee as the authority responsible for such instruction and for the selection and appointment of teachers. The same step was taken by the City and Guilds' Institute in regard to technological subjects. Later on the Board of Education extended the County Committee's jurisdiction to secondary schools and all day and evening classes. The Government grant earned last session in these different directions for higher instruction probably amounted to about £8,000. It has been imperative from time to time to alter boundaries, to discontinue,

* These notes are based upon the annual reports issued by the Technical Education Committees in respect of the year 1901-2.

transfer or amalgamate classes ; in taking these necessary steps everything has been done with a view to systematising, consolidating and strengthening the county scheme. The elementary schools have been indirectly benefited by the provision of scholarships for the children and special instruction for many of the teachers. Up to the present time evening classes have been regularly inspected, teachers registered and the work of the students raised to a standard immensely above that of ten years ago. Facilities for instruction have been created which enable the rural and other remote residents to enjoy privileges almost equal to those in the urban districts. A complete system of scholarships of twelve different classes has been devised, and by its means 581 individual students were assisted last year. Boys' and mixed public secondary schools have been provided with apparatus and laboratories of the best kind. Ten years ago no secondary school in the county had a laboratory, and little instruction in modern science was given at any of the schools. To-day each of the boys' schools aided possesses a fully-equipped chemical laboratory, and some have also a physics laboratory. Four of the schools are attended by girls as well as boys, and the two schools exclusively for girls have modernised time-tables with suitable scientific instruction added. Six new public secondary schools have been established and aided in the county since 1890, and the first secondary school under an endowment scheme exclusively devoted to girls is now being established. The number of pupils enjoying the advantages of attendance at public secondary schools has been nearly doubled. Probably not fewer than 20,000 students have attended public lectures provided or assisted out of the county fund. Very important experiments have been carried out of great benefit to agriculture. Dairy-maids have been instructed in their particular work to the number of over 2,000. Elementary teachers have not been slow to seize the opportunities offered. Five technical institutes have been erected in the county at a cost of about £42,000, of which sum the County Committee have contributed £13,300, as well as an amount of £5,800 allocated to a large number of schools and classes for the purchase of apparatus and special furniture. Several students have enjoyed technical courses at university colleges with most gratifying results ; some of them were enabled to advance from British and other elementary schools by means of county scholarships, without which they would undoubtedly have been compelled to pass their existence in other and much less important spheres of industry than those in which they are now fitted to take a part. In proof of the great benefits enjoyed by many, it may be interesting here to state that hundreds of letters have been received during recent years expressing heartfelt gratitude for privileges enjoyed and opportunities afforded for self-improvement, social advancement and lucrative appointments by means of technical classes or scholarships. It is not safe to judge of results by statistics alone, but such testimony as the above is sure ground for assuming that the administration of the education fund of the Council during the past ten years has been of incalculable benefit to the people of this county. And, finally, the whole scheme under which the Grant has been administered has broadened considerably since 1892, and has been varied to suit changing circumstances.

Essex.—**SUCCESSFUL EXPERIMENTS IN AGRICULTURAL AND RURAL INSTRUCTION.**—The County Committee are able again to announce the initial success of some new departures in connection with certain branches of the excellent work in agricultural education conducted at the Central Laboratories, Chelmsford. The short three weeks' courses of instruction, which have been held with some success in other counties during the winter, were replaced in this county, for the

first time in 1901-2, by one course of nine weeks' duration. The staff-teacher (Mr. T. S. Dymond, F.I.C., F.C.S.) thinks "it is a most encouraging sign that "for this long course not only were all the students who applied for admission "precisely of the class for whom the school is intended (young men beginning "farming), but there were, for the first part of the course, more applicants than "could be admitted. . . . The course included 39 lectures with laboratory "work in chemistry and agricultural chemistry, 14 lectures in physics, 28 lectures "with laboratory work in biology and 54 lectures and field and other "demonstrations in agriculture," the latter proving "a most useful feature of "the course. . . . The horticultural students attending the long course of "horticulture took the lecture and laboratory work in chemistry and physics." The examination at the conclusion of the course, however, was not considered entirely satisfactory. The *permanent* school of horticulture, which provides an advanced course lasting an entire year, completed its first trial year with success: half of the eight students left before the close of the session to take up appointments. It may be noted that the day's programme is (1) one hour's work in the garden before breakfast; (2) three hours in the laboratory in the morning; (3) three hours in the garden in the afternoon. Something has been done in the preparation of museum specimens for teaching purposes, and in the formation of herbaria and collections of insects for reference. The facilities for the training of teachers in rural subjects have been extended, and some results of past efforts in this direction are now apparent in the elementary schools, though, really, only a small number of teachers are yet qualified. There are two field rambles organised every Saturday during June and July, and definite courses are held at three centres. The department of agricultural analysis has developed in a larger degree than in any year since the establishment of the County Laboratories. It is satisfactory to observe the declaration "that farmers have begun to find out "the advantage they possess in having a laboratory in the county town supported "by the County Council where analyses can be done at cost price. There can "be no doubt that the work has a high educational value; the reports are written "from the standpoint of a teacher, and there is evidence that they have led to "the more rational use of artificial manures and foods, and to a better knowledge "of the manurial requirements of soils and of the milk producing capacities of "dairy herds. Besides, the work has brought a large number of farmers into "touch with the work of the Technical Instruction Committee. . . ."

Liverpool.—As this is one of the first county boroughs to adopt the provisions of the new Education Act (see scheme published on pp. 196-8), the concise statement of the Director (Mr. Wm. Hewitt) upon the operations during the last eleven years in technical and secondary education is of special interest. It appears that no separate Technical Instruction Committee was appointed by the City Council until the close of 1897, the duties having been undertaken until then by a special sub-committee of the Library, Museum and Arts Committee. The Technical Instruction Committee were, from the first, always representative of local educational agencies through co-opted members, and it may be said that the principles of the present Education Act in regard to the constitution of an Education Committee were anticipated in Liverpool in 1899 when another departure took place by the nomination of members by the School Board, the secondary schools and other institutions. All but £7,000 out of the £232,451 of Residue Grant received has been devoted to educational purposes. A great deal has been done in providing well-equipped centres for technical instruction without resort to the rates. Four such centres have been established in this way at a total cost of £30,400; in addition, a central school has been built for an

outlay of £110,000. The students' entries to the classes at all these centres for the current session amount to a total of 7,748. In the *creation* of new institutions to meet peculiar local demands the Technical Instruction Committee have made unique efforts and been rewarded with singular success. Among these may be mentioned—(1) the nautical college, established in 1892, nearly 2,000 students having passed through its courses of instruction; (2) the school of architecture and applied art, established in 1894; (3) the school of commerce, which developed from evening classes organised in 1898 to include systematic day classes started in 1899, and also later on special classes during business hours. Direct assistance has also been continuously given to the local university college, the secondary schools, five pupil-teachers' centres, evening continuation schools and day continuation classes, evening classes in commercial and domestic subjects and a seamen's cookery class. So that practically the whole field of education, with the exception of the purely elementary schools, has been more or less under municipal control for years. Further, the training of 567 individual students has been undertaken by the following awards:—elementary science scholarships, from elementary to secondary schools, 134; technical science scholarships to Liverpool University College, 59; art scholarships, 25; commercial studentships, 136; science and technological exhibitions, 112; art studentships, 51; instrumental music exhibitions, 50.

Monmouthshire.—In view of the transitional stage of general educational administration impending at the end of last year, the County Technical Instruction Committee prepared a detailed memorandum upon the facilities for, and the present condition of, all grades of education in the county. This is particularly valuable and interesting; firstly, because it deals with a large area where, speaking broadly, the educational provision is already practically complete, though, of course, not co-ordinated under one authority, and secondly, as it contains a concise record of some of the chief results obtained in and through technical instruction from the time of the adoption of the Acts by the Council.

GENERAL SURVEY.—The University College of South Wales and Monmouthshire at Cardiff is directly associated with both the scheme of technical instruction and the intermediate education system, the latter being in a good state of organisation. There are 15 schools (including two in Newport county borough) at work under the Welsh Act, and these afford accommodation for nearly 2,000 pupils, considerably more than one-third of whom may be girls. The schools are thoroughly well-equipped with the means of giving practical instruction: they possess between them at least 14 science laboratories, ten science or art class or lecture rooms, nine kitchens or laundries and five manual workshops, in addition to libraries and museums. There is furthermore an abundant supply of scholarships and leaving exhibitions. For the training of pupil-teachers there are five Centres (300 students) in the county, hitherto maintained by School Boards at a total annual cost of £1,400; and one girls' intermediate school is utilised also for the same purpose. In the domain of elementary education there are three endowed schools, at one of which, situated in a purely-rural district (Llantillio Crossenny), garden plots are provided by the managers and the county lecturer pays visits to give instruction. Of public elementary schools there are 186, of which about half are voluntary and half are board schools. Accommodation is provided for over 48,000 scholars, and the average attendance, and also that recognised for grants, reaches 36,000; "half-timers" are unknown. The percentage of average attendance of scholars to the number on the register, as well as that of certificated teachers, is somewhat below the percentage in both respects of the other counties of England and Wales.

RESULTS OF TECHNICAL AND AGRICULTURAL INSTRUCTION.—The strides made generally by technical instruction in the county from the year 1891 are seen in the simple fact that the number of students attending technical classes (excluding courses of lectures and agricultural subjects) organised by local committees working under the county regulations has been more than doubled, rising from 2,133 to 4,360; and the most popular classes and those showing the largest and quickest growth being in branches of domestic economy. The scheme of agricultural instruction, under the supervision of a special organiser, seems to have been not only most complete but singularly successful. The county area has been almost or entirely covered by certain branches of work. For instance, the dairy school "has held classes in almost every part of the county," and, together with the cheese school, has been inspected by 11,615 visitors up to the close of the session 1901. Again, classes in hedging "have been held throughout " the whole county, and have been chiefly attended by farmers' sons." The methods of instruction adopted are of such a practical nature as to be of undoubted utility to farmers and other agriculturists. For example, in connection with arboriculture, inspection and advice upon the management of young forest and other trees, the most suitable kinds for planting in each district, etc., are given *gratis* upon application. During the last seven years, all the fruit trees used for demonstration purposes have been produced in two institutions (one an industrial and the other a reformatory school) where agricultural instruction is given. With the view of encouraging bee-keeping, the novel plan has been adopted by the Committee of placing hives as object-lessons in various districts in the county, the produce becoming the property of those entrusted with them. A useful department is a small agricultural library, which is open to teachers and to members of farmers' clubs and other agricultural associations. A list of the present occupations of over 100 past students of county technical classes and county scholars who have distinguished themselves shows the essential value of suitable technical training. Some of these persons have taken up important industrial, commercial and educational posts abroad (*e.g.*, in South Africa, Malay Peninsula and Ceylon) as well as at home, and all have evidently been better prepared for their future by the courses pursued.

Staffordshire.—COMPARISONS WITH 1891.—A short retrospect of 1891-1902, or more exactly a comparison between those two years, is embodied in the last report of the County Technical Instruction Committee. While this shows, in a few words, the great barrenness of the field in regard to the local provision for technical education at the time of the commencement of their work (and the same language would probably apply to almost every other county in England), yet a good deal more could be made of the opportunity for comparison thus afforded. But, taking only the few points touched upon in the retrospect, the difference is convincingly striking. For the year 1891 the total grants sanctioned were £4,485, whereas, according to the financial statement, payments amounting to over £20,000 were made for 1901-2, excluding the cost of central administration. To look at the position in another way, it appears that during the eleven years under consideration an amount of £171,000 was expended upon technical instruction. It says much for the force of local initiative in Staffordshire on behalf of the cause of technical education that the urban districts should so soon (in 1891) have raised a sum of £1,400 in response to the equivalent grants offered by the County Council; since then, however, the local contributions have increased almost fourfold, namely, to £5,424, this sum being found by 26 out of the 36 existing urban authorities. In 1891 scholarships, exhibitions and studentships were founded at an annual cost of £990; for the year 1901-2 nearly £2,000 more were

used for the same purposes. With regard to grammar schools, no assistance was given until the year 1892, whereas for 1901-2 the total grants distributed to them amounted to £1,932. Passing from these comparisons, the relative importance of the various industries and employments in the administrative county are brought out by a memorandum upon the Census of 1901. The five industries or employments standing at the head of a list of 17, and the percentage of persons to the population employed in them, are respectively as follow:—metals, machines, etc., 18·36; mining, 12·74; brick, pottery, etc., 11·80; domestic, 9·45; agriculture, 6·10. Provision is made in the county scheme for instruction bearing upon each of these employments. It is impossible to state the money separately devoted to instruction bearing upon them, with the single exception of agriculture; but it would seem that this last-named industry has received very liberal treatment, considering its relative importance, £2,750 being appropriated to it.

AGRICULTURAL CO-OPERATION.—The subject of agricultural co-operation received during the year considerable public attention through the publication of a valuable report drawn up by a selected party of Staffordshire farmers, who visited Ireland with the approval of the County Committee to study the principles of the subject as carried out in that country. The party seem to have been greatly impressed by the Irish movement originated 13 years ago by the Rt. Hon. Horace Plunkett, and the figures indicating its rapid growth are worth recapitulating. The membership of the organisation is now 57,211, the capital £500,000 and the annual turn-over £1,167,945. The total number of co-operative societies is 564, of which 277 are dairy, 112 agricultural, 26 poultry and 48 miscellaneous, with 101 agricultural credit banks. It is declared that some of the principles at work in Ireland might be satisfactorily applied to the conditions in Staffordshire; for instance, those in regard to co-operative factories for the manufacture of cheese and the sale of milk, to the poultry and egg industry, and to societies for the purchase of farm requisites. This opinion is in a measure endorsed by the County Committee themselves, who hope that some plan may be found "by which the Staffordshire dairy farmers will be enabled to co-operate in disposing of their surplus milk supplies." The party specifically advocate the establishment of a cheese factory to be conducted upon purely co-operative lines; and, as regards the educational side of the subject, the desirability is urged of the County Council promoting a demonstration farm in certain eventualities.

THE GLASS TRADE AND FOREIGN COMPETITION.—Another unusual step was taken by the County Committee in the despatch of the county instructor in glass-making on a tour of inspection of ten of the chief centres of that industry on the Continent. The extent of the instruction provided up to the present has been "necessarily very limited, and the endeavour has been to proceed by small stages as the local conditions (*i.e.*, at Wordsley) allow rather than to attempt any elaborate scheme. . . . The increasing depression which is felt in the neighbourhood of Wordsley, in common with other English glass-making centres, is due in a large measure to the enormous importation of foreign productions, and every effort is being made in the classes conducted under the county scheme to illustrate and teach the scientific principles underlying the more advanced methods of manufacture. With the object of extending the utility of the instruction in this direction" the tour was undertaken, and the following is a synopsis of the most important of the conclusions arrived at by the county instructor (Mr. Frederick Carder). It is declared that the Germans and Austrians are gradually absorbing the glass trade in Europe. The workmen of all grades, especially the managers, have had a better education than similar

English workmen. Promotion does not, as in England, take place by rotation, but those who show aptitude and skill rise and are paid accordingly. Obsolete and old machinery is at once discarded, and the most up-to-date replaces it ; all machinery is designed to save labour as much as possible. Every improvement affecting manufacture is immediately adopted, and, in any difficulty, specialists are consulted. For instance, in both Austria and Germany, the great bulk of the firms who manufacture all kinds of glass use furnaces worked by gas systems, in preference to the direct method of firing with either coal or wood, the method invariably adopted in England : in all English houses which make table-glass the same old style of furnace that has been in use for the past 100 years is to be found. Better arrangements are made for conducting factories, especially in the warehouses by the facilities for the removal of goods by machinery. The Continental commercial traveller shows much ability in the study of foreign markets. Lastly, three conditions are set down as tending to give the foreign trade the advantage over the English. These are (1) the cheaper cost of fuel, (2) the position of works, which are usually located where living is cheap and taxes low, (3) the cheapness of labour, the average wages being from 25 to 45 per cent. lower than in England.

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AND

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(Commissioner for Labour at the Board of Trade),

WITH AN INTRODUCTION BY THE

RT. HON. JAMES BRYCE, M.P.

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I.—EDITORIAL NOTES. 18 1003

For the purposes of the advancement and development of all branches of education in the Metropolitan area, we have now The Education (London) Act, 1903. We gave an outline of the measure when it was a Bill and was passing through a tumultuous course in the House of Commons. It may not be necessary to refer in detail here to the Bill as it was first introduced into Parliament and to compare it with the Act subsequently placed upon the Statute Book; our readers will be able to do this for themselves, inasmuch as we printed the Bill as first introduced on pp. 251-55 of the April number of "The Record," and the Act itself will be found on pp. 352-7 of the present issue. We may mention, however, that some very important changes were made, and that these changes served to emphasise rather than to weaken the central principle of the measure, namely, that the London County Council shall be the Local Education Authority for the county of London. The firm establishment of this principle being assured, the Bill may be said to follow, so far as higher education is concerned, the lines of the Act of last year. But it deserves to be noted that, in the matter of rating for the purposes of higher education, the limitation of twopence in the £, applicable in the cases of all other administrative counties (subject, of course, to the powers of the Local Government Board to relax such limitation), will not apply. The problem of the administration of the Act for London will call for exceptional care and skill; but, having regard to the educational and tactful qualities possessed by the Technical Education Board of the London County Council and their chief officials, the new Local Education Authority for London may be trusted to construct machinery to grapple successfully with this huge task as well as to quicken the educational zeal and reflect the resourcefulness of the chief city of the Empire.

* * * * *

The Agricultural Education Committee continue to occupy a position of influence and authority among the various bodies who are working for educational and industrial reform in this country. At a general meeting of members held at 10, Queen Anne's Gate, Westminster, S.W., on the 23rd July, it was resolved to continue

to pursue the course upon which they entered about four years ago. During the brief existence of the Committee, they have been able to witness the accomplishment of many of their objects, which, it will be remembered, were described in general terms as—
 (a) “to secure systematic and efficient instruction, both theoretical and practical, in agricultural subjects suitable to every class engaged in agriculture (b) to diffuse among the agricultural classes a more thorough appreciation of the advantages of instruction bearing directly or indirectly on their industry.” The achievements already made have naturally brought in their train a demand for guidance and help. Thus, the Agricultural Education Committee are not only endeavouring to satisfy this demand but they recognise, also, the work that is needed in order that the whole of their objects, as set out above and in subsequent resolutions, may eventually be secured. In addition to the actual progress made in the domain of central and local administrative procedure, there are the forces of propagandism which the Committee have steadily focussed upon those interested or engaged in rural and agricultural pursuits. Through the medium of suitable leaflets and pamphlets, these forces have done a great work; and there is reason to hope that by such activities beneficent and extensive results will accrue.

* * * * *

Very quietly, and without any legislative action, a most important change has been made in the method of assessment of grants to evening science classes by the South Kensington Branch of the Board of Education. This change has been brought about by the abolition, practically, of grants on examination results and the substitution of attendance grants. Whilst the alteration in the method of assessment is, in itself, of great advantage and encourages greater freedom in teaching, a far-reaching consequence is seen in the assistance which the State is now able to give to instruction in technology. For years the various bodies interested in technological teaching, and especially the City and Guilds Institute, have been urging the Government to recognise, by some kind of subvention, the numerous classes which, slowly since 1880, and more rapidly since 1890, have been organised in the industrial centres for the teaching of science in direct application to the trades of

the district. To this request the old Science and Art Department invariably gave a *non possumus*. But now, by altering only the method of appropriating grants, and by leaving each Local Authority to decide, subject to the general approval of the Board of Education, the character of the instruction most suitable to the locality, State aid is given to the teaching of a large number of distinctly trade subjects, which formerly were expressly excluded from receiving Government aid. This new departure makes the teaching in our technical schools far more serviceable to the industries of the country than it was previously, when grants were paid on the teaching of what was called pure science only. This result is largely the outcome of the suggestions of the Departmental Committee on Technological Instruction, of which Sir William Abney was Chairman, and has led to a much closer union between the Board of Education and the City and Guilds Institute than has existed at any previous time. From the speech of Lord Londonderry in opening the Institute's Exhibition in June last, it may be inferred that the policy of the Duke of Devonshire and Sir William Abney will be continued by the present officers of the Board of Education, and that Mr. Morant and Mr. Grant Ogilvie will favour the extension of technological instruction and the further co-operation of the Board with the work of the City Guilds.

* * * * *

In the January issue of the current volume of "The Record," we referred briefly to the Report of the Departmental Committee on British Forestry, and we expressed the hope that we might be able to deal with the subject fully in a subsequent number. We are glad to be able to publish *in extenso* on pp. 304-18 the Report and Recommendations of the Departmental Committee; but we were anxious to accompany these with a review of the problem as a whole, and also with an elaboration of the principal points which call for prompt and thorough treatment. It is important that the public should know the extent of our national losses traceable to the neglect of silvicultural principles, and the information before us will reveal much. The various Local Education Authorities will doubtless promptly undertake their respective obligations when they become impressed with them. Indeed, several of these bodies have the matter under their consideration, while university colleges also are applying themselves to its advancement. We note with pleasure that the Governing Body of the Royal

Agricultural College at Cirencester are identifying themselves with the movement, and have resolved to create a "Chair of Estate Management and Forestry," and to appoint thereto a specially-qualified Professor or Lecturer. In Wales, a Conference of the whole of the County Councils of the Principality is to be held, in October next, to consider the question of the proposed school of Forestry. Again, the meeting held in Birmingham a short time ago to set on foot a movement for the reafforestation of the "black country" is another sign that opinion is shaping itself along definite lines. We shall continue to hope that, in future numbers of "The Record," we may be able to supply such information to our readers as will quicken an interest and promote action in a work of acknowledged urgency.

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It would seem that in Ireland the most pressing problem at present is to secure the proper correlation of the several grades of education. This may be inferred from the record of the progress recently made throughout the country and given in the National Association's Report, which we notice later; but it is also a matter of the necessity for which the Royal Commission on University Education directly and emphatically speak. From a perusal of their valuable suggestions, printed on pp. 321-32, it will be seen that the Commissioners declare that co-ordination must precede the institution of any satisfactory scheme of university training available to all classes. The specific means suggested for bringing it about with the existing agencies embrace (1) the provision, by the Intermediate Education Board, of county scholarships from the higher primary to the secondary schools, (2) the establishment of secondary schools with divergent curricula, and, ultimately, (3) the institution of "leaving certificates" from the secondary schools to the University. The harmonious relationship now existing between the Board of Agriculture and Technical Instruction and the Intermediate Education Board, in regard to science instruction and examinations, etc., is especially commended by the Commissioners. As regards intermediate education, in their last report (for 1902) the Intermediate Education Board plead in strong terms for the immediate appointment of a staff of permanent inspectors, in accordance with the terms of Clause (2) of the Act of 1900, those acting temporarily having "caused a marked improvement in the schools and in the efficiency of their teaching." The continuance of a system of payment of grants (amounting to £57,513 to 268 schools in 1902)

and the award of exhibitions and prizes upon examination results without systematic inspection, which has existed for years in connection with the Irish intermediate schools, is distinctly out of favour, and we trust, therefore, that the Board's recommendation will be speedily adopted.

* * * * *

An interesting experiment in technical instruction, of which a detailed account appears on pp. 335-40, was made last session by one of the Staffordshire county instructors. In connection with his mining classes he was confronted by the difficulty that the majority of his pupils had not undergone any preliminary scientific training. Realising, therefore, that ordinary methods of teaching would be ineffectual, he adapted his syllabus accordingly. The object of the course was not merely to convey useful and practical information but to form a scientific habit of mind, and to encourage a spirit of independent research. With but simple apparatus, such as any member of the class could construct for himself at home, and by carrying out the work on entirely heuristic lines, a very promising start was made. The experiments were performed by the students themselves with just so much guidance as was necessary. Their enthusiasm appears to have been exceptional, excelling, in fact, that of the majority of pupils in his other classes, and all of them were fired with a spirit of inquiry. Such a course of instruction seems to provide for a very real want, and the idea is one which *which* should commend itself to other technical instructors. We are informed that it is proposed also to institute next session a course on very similar lines for the benefit of the pottery students in the district.

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As intimated in our last number, we publish, on pp. 343-51, the first list of the chief officials appointed to administer the Education Act, 1902, in administrative counties and in county boroughs in England and Wales. The list, which is fully up to date, has been compiled from various trustworthy sources, and has been confirmed in most instances by the officials themselves. It will be seen that particulars are given of 43 of the 48 English counties (of course, excluding London) and of 45 of the 66 English county boroughs: no appointments by permanent Education Committees have yet been made in the Welsh Principality, nor in the remaining English counties and county boroughs, in consequence of the fact that,

To give completeness to the scheme, other departments would need to be added. There are branches of engineering for which at present no higher courses of instruction have been arranged. No provision is, as yet, made for the teaching of several industries involving the application of chemical science; whilst there does not exist in London any properly-equipped school of architecture, such as is found in the Charlottenburg institution. Indeed, there is no difficulty in indicating the needs of London, for which a much larger appropriation than £20,000 a year is urgently required. The recommendations of the joint committee, which were approved by the County Council, will be found on pp. 358-65.

* * * * *

In our last volume (April, 1902, pp. 223-31) we published the Order in Council of 6th March, 1902, for providing the manner in which a Register of Teachers shall be formed and kept. The Regulations made therein have since been modified and altered by a further Order in Council issued on 11th August, 1902, and by the Regulations framed by the Consultative Committee on the 18th June, 1903, and approved by the Board of Education. To ensure that our readers may be kept fully cognisant of the importance of the changes effected, we republish, on pp. 365-75, the whole of the Regulations, notifying all the alterations and modifications made to the original Regulations. In this connection we would also draw attention to the following statement issued by the Registrar of the Teachers' Registration Council (Mr. G. W. Rundall, M.A.):—"By their Minute of 25th June, amending the Regulations for registration in Column B of the Teachers' Register, the Board of Education have effected changes of great interest and importance. The chief alteration is that, by conferring a discretionary power on the Registration Council, they have opened the door to many who, under the rigid legal interpretation of the original Order, could not gain admission. Thus, under Regulation 3—for which training is a necessity—the Council have now more freedom in interpreting the meaning of the term 'a year of training.' Under Regulation 4 they can now relax the stringency of the phrase 'three years' 'next preceding the application.' Teachers who fail in this requirement can be admitted if they have served for periods which, in the opinion of the Council, are equivalent to three such years. The many teachers who, through lack of a university degree or its equivalent, were, in spite of many years'

"experience, debarred from registration, are now eligible under Regulation 5 (2) (b), provided they can show ten years of teaching other than elementary or in an elementary school, and can give satisfactory evidence of their ability to teach."

* * * * *

Since our last issue four other "Statements of Schemes for the formation of Education Committees" approved by the Board of Education during the months of April, May, June and July have been issued as Parliamentary Papers (Cd. 1,613, 1,659, 1,675 and 1740). Altogether, the five Statements deal with the schemes of 271 Local Education Authorities, as classified below. Of the administrative counties in England, only Durham has not yet had its scheme approved by the Board of Education; but, on the other hand, in Wales only three counties, Brecon, Carmarthen and Radnor, have their schemes so approved. As regards the county boroughs, it will be seen that there are only eight out of 69 where the new Committees have still to be approved. In order to preserve the continuity of our previous précis, and to bring out the same two important points relating to the constitution of Education Committees throughout the whole country (namely, (1) the proportion of municipal members, and (2) the extent to which women have been included) we give now a carefully-prepared summary of the *five* official statements combined:—

Local Education Authorities.		Education Committees.			
	Number of Members.	Number of Members.	Councillors.	Non-Councillors.	Women.
51 Counties	3,664	1,929	1,340	589 including 115	
61 County Boroughs	3,128	1,776	1,147	629	109
109 Boroughs over 10,000 population..	2,873	2,156	1,370	786	168
45 Urban Districts over 20,000 population ..	783	856	530	326	59
5 minor Authorities with concurrent powers under Section III. ..	115	87	48	39	8
Totals (271 Authorities) ..	10,563	6,804	4,435	2,369	459

* * * * *

At the recent summer meeting of the University Extension Society, held at Oxford, Sir Philip Magnus presided at a conference on The Relation of Science to Industry. In the course of his introductory address, Sir Philip spoke of the proposals for

establishing in London, on the vacant land at South Kensington, an institution similar to the Technical High School at Charlottenburg. We have so frequently referred to that institution in these columns that it is unnecessary to point out the somewhat erroneous and exaggerated statements that have been made with regard to the character and work of it. But Sir Philip did well to show that the school at Charlottenburg is only one of nine similar institutions in Germany, and, in reality, only an enlargement, with several additional departments, of the Central Technical College. To erect in the immediate neighbourhood of the latter another school, doing practically the same work, might possibly complicate the problem which awaits solution in order that London may be provided with adequate facilities for the higher technical education. It is thought by some that what is wanted is not a new institution but a scheme for the co-ordination of existing science and engineering schools, both at South Kensington and in other parts of London, so that ample opportunities may be forthcoming for complete courses of instruction in different branches of industry and for post-graduate study. Sir Philip Magnus further expresses his opinion that an institution devoted to post-graduate study only would undoubtedly prove a failure. The number of separate departments would be unduly large, and the number of students would be unduly small. The cost of such an institution would be out of proportion to the results to be obtained. Moreover, students would lose the manifest advantages of continuing their studies, after graduation, under the same professors, who had formed their minds and trained them in scientific method during their undergraduate days. The experience of American schools shows that, where institutions have been founded for the more advanced scientific and research work only, more elementary and introductory courses have been added, and the institutions have been brought into competition with other schools. In any comprehensive scheme for the highest technical education, we feel sure that due regard will be had to the views of all those concerned with promoting its success.

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The importance of educating our manufacturers to appreciate the value of the aid which science may lend to industry was duly emphasised in Sir Philip Magnus's address. It avails little to train a whole army of experts, if our manufacturers continue to display a marked indifference to the help of scientific investigation and research in cheapening production. It was pointed out by Sir Philip that one of the reasons of the increasingly successful

competition of American manufacturers was their readiness to consider every suggestion for effecting economies in production, and their alertness in taking advantage of new discoveries and inventions. The commercial knowledge and enterprise of American traders is a factor of some weight which cannot be overlooked. Recent reports which have reached us show that, in nearly every engineering college in the United States, the study of political economy, of commercial law and methods, is a part of the regular course of instruction. Training in such methods has been too much neglected in England; but we may hope that this very necessary part of a manufacturer's or an engineer's education will find its proper place in the scheme for providing additional facilities for the higher instruction of London students.

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The attention of all Local Education Authorities should be given to the 14th Report of the National Association for the Promotion of Technical and Secondary Education, published since our last issue. It contains much useful information, respecting the local administrative progress, made since 1901 throughout the United Kingdom, in connection with higher education. We can only refer here to a few of the most important facts recorded in the Report, the county of London being specially referred to in the Reviews on pp. 387-9. As regards the Local Taxation Fund available in England and Wales, it is pointed out that the appropriation of the whole of this Fund to education has now been finally settled by the Education Act, 1902—a reform so long advocated by all who have been the most intimately connected with the administration of the Technical Instruction Acts. The total amount of Residue Grant available for utilisation by Local Authorities in England and Wales during the year 1901-2 was only £969,000 as against an amount of £1,028,000 in the previous year, a diminution (the first time for at least seven years) of £59,000, of which the English Authorities were deprived of about £57,000, and the Welsh Authorities of about £2,000. For the year 1902-3, the Grant available for utilisation again decreased, viz., to £896,000—a further diminution of £73,000. Thus, during these two years there was a total loss of £132,000 in the amount of Grant received by Local Authorities; and, further, the aggregate sum out of the Grant spent upon education in England and Wales has been reduced from £948,000 to £868,000. This decline, if continued, will obviously compel many Local

Authorities to have immediate recourse to the rates in order to maintain their schemes of higher education at their present level.

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Of the 49 County Councils in England, 42 were giving all and only seven were giving part of the Grant to educational purposes at the time of the passing of the Act of 1902, these seven Councils being Gloucestershire, Herefordshire, Isle of Ely, Lincolnshire (Holland), London, Rutland and the Soke of Peterborough. Of the 66 County Borough Councils in England (including the two towns of Rotherham and West Hartlepool recently constituted county boroughs) only three (viz., Gateshead, Grimsby and Preston) were diverting any part of the Grant to the relief of the rates. The 13 County Councils and the three County Borough Councils in the Principality of Wales have from the first consistently appropriated the whole of their shares of the Grant to education, either of the distinctly technical or the intermediate type.

* * * * *

With regard to the question of the utilisation of the rating powers of Local Authorities under the Technical Instruction Acts, it would seem that, apart from the county boroughs and the counties, the position has not materially advanced since the year 1900-1. Including County Councils, as well as County Borough Councils, the aggregate number of Local Authorities adopting the provisions of the Acts in England and Wales is 365, and the amount raised annually by them is, approximately, £159,000, an increase of £53,000 since the year 1898-9. The following summary, which embodies the most recent action of the county boroughs, shows the extent to which the different Local Authorities in England and Wales, other than the County Councils, utilise their rating powers. In this summary, the authorities have been classified in the same way as they are grouped for the purposes of administration by the provisions of the new Education Act. Thus, it may be noted that the non-county boroughs with over 10,000 inhabitants, and also the urban districts with over 20,000 inhabitants, stand on practically the same level as the county boroughs in respect of the proportionate number of authorities rating, *i.e.*, about one-half in each case.

Name.	Authorities.		Total sum raised., £
	Total No.	No. raising Rates.	
(a) County boroughs	69	33	82,465
(b) Non-county boroughs with over 10,000 inhabitants.....	138	78	24,369
(c) Non-county boroughs with under 10,000 inhabitants.....	108	20	1,160
(d) Urban districts with over 20,000 inhabitants	61	34	8,933
(e) Urban districts with under 20,000 inhabitants	745	186	11,607
Totals.....	<u>1,121</u>	<u>351</u>	<u>£128,534</u>

From the above it may be calculated that, excluding counties, nearly one-third (or 31 per cent.) of the rating authorities in England and Wales have utilised the provisions of the Technical Instruction Acts. Of the county boroughs, at least 17 have levied the full penny rate under the Acts; and Surrey and the West Riding of Yorkshire were, up to the passing of the Education Act, 1902, the only English County Councils who have ever levied a county rate under the Technical Instruction Acts over their whole administrative areas.

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The establishment and development of permanent technical and secondary schools of all kinds is still a task of considerable concern to many Local Authorities in all parts of the country. It may be estimated that over another quarter of a million of money (or £255,950) has become involved since 1901 for the structural development of technical schools. The *total amount* incurred in England alone (excluding London) for the establishment of 319 technical schools under municipal and public bodies is now at least £3,186,102; and it may be that if all outlays upon other schools could be definitely assessed, and those upon London institutions included, the estimate would reach over £4,000,000. There are now 88 voluntary science, art and technical schools which have been transferred to Municipal Authorities in England and Wales under the powers given by the Schools for Science and Art Act, 1891, and by the Technical and Industrial Institutions Act, 1892, and of these, 45 are situated in county boroughs.

In the matter of providing and controlling secondary day schools of different kinds, the action taken by County Councils and other Local Authorities, with the limited powers possessed hitherto under the Technical Instruction Acts, deserves particular attention at the present time. The general work of County Councils in connection with secondary schools is not, for the moment, under review, but rather those cases in which these Councils have co-operated with minor Local Authorities, administering other than rural areas, in the direct establishment and management of schools of this character. In at least 103 towns or districts, secondary schools have been established by or transferred to Local Authorities, or action of the kind is impending. In the cases of schools transferred, which are mainly old endowed schools, the change is effected under revised schemes of the Board of Education (since that Board have now absorbed the educational functions of the Charity Commission), and in this way the Governing Bodies of the schools have been reconstituted, a strong municipal element being incorporated. A number of the schools are carried on as technical or science day schools under the regulations of the Board of Education, and as departments of municipal technical schools. It should also be noted that many schools are either mixed or dual schools, particularly those situated in towns in the county areas of Buckinghamshire, Cheshire, Derbyshire and Wiltshire, and the work of the schools conducted on these lines seems in almost all instances to be conspicuously successful.

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The work of the Welsh county schools continues to make steady progress. Out of the 95 schools, there are probably only four which are not yet in possession of permanent buildings, the capital outlay upon the 91 schools reaching a total of quite £400,000. Nearly 70 of the schools have been recognised as secondary day schools under the Directory of the Board of Education. Since the year 1900, there has been an increase of 877 in the number of pupils in attendance, the total now standing at 8,322. The secondary character of the instruction imparted in the schools is clearly indicated from the facts that less than six per cent. of the pupils are under twelve years of age, and that as large a proportion as 76 per cent. are drawn from elementary schools. The local scholarship schemes in force provide, in the aggregate, so large an amount of assistance to pupils as to considerably influence the attendance at the schools. From the complete returns published by the Central Welsh Board, it appears that

2,766 pupils, or 36 per cent. of the whole number, hold scholarships and bursaries, the proportion assigned to girls being only 150 below that to boys: the total value of the aid thus granted from school district and scholarship funds, private donations and endowments, reaches £13,779.

* * * * *

With regard to the development of rural and agricultural education, a fair trial seems now to have been given to the agricultural provisions of the Elementary Education (School Attendance) Act (1893) Amendment Act, 1899, which has been commonly known as "The Robson Act"—a suggestion originally made by the Agricultural Education Committee. According to the report of the Board of Education, the agricultural bye-law which Local Authorities are empowered by the Act to frame had been adopted, up to the end of the year 1900-1, in 500 cases, chiefly, of course, in the rural districts, while in the following year the number had increased to 822. No returns have yet been compiled as to the number of children who have obtained exemption from school attendance under the agricultural provisions of the Act, but there is sufficient evidence to show that considerable advantage is being taken of the great opportunity thus afforded for combining work on the farm with work in the school. It also appears that the limiting of the employment of the children has had the beneficial effect of securing greater regularity of attendance at day schools during the winter or other months when the services of children for agricultural purposes are not so much required. It is not so easy, and perhaps yet rather too early, to say if there have been any appreciable results from the operation of the bye-law upon the work of evening continuation schools. Nor is it any more possible to state how far the suggestion of the Agricultural Education Committee—that children affected by the bye-law should be taught in a separate department and given instruction bearing upon agricultural work—has been carried out. But all these are points that it would be interesting and useful to have elucidated.

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In the continued absence of the promised Education Bill for Scotland, education is administered North of the Tweed on the same lines as in previous years. Under the Scotch Education Act, 1901, the school age limit is, however, raised to 14 years. The only exception is in the case of pupils who are specially

excused under stringent regulations by the School Boards. After passing at about 13 years of age the equivalent of the old Sixth Standard, at which stage the Merit Certificate used to be granted, most pupils must practically remain at school for at least another year. The improvement in the training of teachers still continues. Of the existing teachers, 80 per cent. of the males and 62 per cent. of the females have passed through training colleges. The total number of King's Scholars and King's Students have increased 50 per cent. in recent years, and the curriculum has been broadened. Greater encouragement is now given to teachers to go to the universities. Students in training colleges who have taken the Leaving Certificate, or who have passed the University Preliminary Examination, may take university classes. Of 1,382 King's Scholars in training last year, 521 took 1,012 university classes: a large proportion of the males and a considerable number of the females took the university classes of psychology, logic and moral philosophy. Besides these King's Scholars there are the King's Students who are studying wholly at the universities, and practice in the schools attached to them, and who must have a first year's course in English and science provided for them apart from the regular university classes. There are 155 such Students, the large majority of whom are proceeding to a degree. Thus, it may be said that almost half the teachers in training in Scotland are getting university education. Within certain limits, each training college has its own curriculum. The Department consider it necessary to require in future that all prospective appointments to the training college teaching staff shall be intimated to them beforehand.

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As regards the instruction of teachers in agricultural subjects, it may be noted, in view of the efforts of the Agricultural Education Committee, what the Scotch Education Department say in their last report upon this point:—

“ While we do not think it feasible or desirable to make practical instruction in agriculture part of the curriculum of rural schools in general, we think it possible to give to the studies of the more advanced pupils in many of these schools such a direction as shall foster their interest in rural life and give them some insight into the scientific principles which underlie the practice of agriculture. When it is desired that opportunity should be

"afforded to teachers in suitable localities to qualify themselves more fully to give instruction of this nature, advantage should be taken of the provisions of Article 91 (*d*) of the Code, and we are of opinion that such classes for the instruction of teachers in matters appertaining to agriculture should as a rule be held at the central agricultural institutions and should be under the general direction of the managers thereof."

Under the Article mentioned, three-fourths of the actual expenditure upon the classes, after deducting the income from fees, may be provided from the Department's grant.

* * * * *

There is still, unfortunately, no improvement to record in the administration of the Residue Grant in Scotland. The number of County Councils who allocate the whole Grant to education has declined to 22, and the amount of the Grant available for utilisation for the year 1901-2 shows a decrease of £8,000. Out of a total Grant of £79,000, no less a sum than £23,000 is devoted to the relief of the rates. The following summary shows the proportion of the aggregate sums so devoted by the respective Local Authorities, and also indicates, clearly enough, that it is the action of so many minor Authorities which seriously hampers the development of technical education in Scotland :—

Local Authorities.	Percentage of Grant devoted to Relief of Rates.
33 County Councils	9 to 10
85 Burghs	40 to 41
121 Police Burghs	62

* * * * *

Since the publication of the National Association's Report, the annual Parliamentary Return, as to the application of funds to technical education by Local Authorities in England and Wales, has been issued, and we are naturally glad to note that it corroborates minutely the information given in the Report. There are, however, additional figures available in the Return respecting loans raised and the balances (chiefly of the Residue Grant) accumulated by Local Authorities; but the actual proportions of the rate, in addition to the sums raised by rate, are still not stated in the Return. It appears that the total amount of loans, raised

on the security of the local rate under the Technical Instruction Acts, outstanding at the end of the year 1901-2 was £1,030,952, more than two-thirds of which is a charge upon the county boroughs alone. The aggregate amount of money accumulated by Local Authorities at the same period is returned at £658,319 (including London).

* * * * *

In this connection, some useful comparisons may be made with the data compiled two and four years ago by the National Association. Deducting the accumulations of all the Welsh and of the English minor Local Authorities (boroughs and urban districts), the following tabular summary indicates that the numbers of County and County Borough Councils making, as well as the amounts of the, accumulations have risen annually :—

Year.	No. of Local Authorities.	Aggregate	
		Accumulation.	Accumulation.
		£	£
1898-9..	{ County Councils*	30 .. 279,963	} 331,903
	{ County Borough Councils ..	16 .. 51,940	
1900-1..	{ County Councils*	39 .. 346,669	} 415,478
	{ County Borough Councils ..	20 .. 68,809	
1901-2..	{ County Councils*	42 .. 412,063	} 493,319
	{ County Borough Councils ..	32 .. 81,256	

It should be pointed out that a large proportion of this money must be considered current and not of the nature of *reserve* funds, as a number of Local Authorities carry forward from year to year considerable sums appropriated to education in order to meet instant claims. But when every allowance is made, there is evidently such an amount of money not yet earmarked as will greatly assist that complete and systematic local organisation of higher education so earnestly advocated at the Conference held last spring under the auspices of the National Association.

* * * * *

The National Agricultural Examination Board announce that the annual examination of candidates for the National Diploma in the Science and Practice of Dairying will be held—for English students, at the Reading College from the 21st to the 24th September, and for Scottish students at the Dairy Institute, Kilmarnock, from September 28th to the 1st October. The last day for the receipt of applications to sit at either of these centres

*The county of London is omitted from these figures, as the balances in respect of each year cannot be stated.

is August 31st. The subjects of examination are the general management of a dairy farm, the management of a dairy, chemistry and bacteriology, practical skill in dairy work and capacity for imparting instruction to others. Forms of entry and copies of the regulations may be obtained of Sir Ernest Clarke, 13, Hanover Square, London, W., or Mr James Macdonald, 3, George IV. Bridge, Edinburgh.

* * * * *

A general meeting of the Association of Directors and Secretaries for Education was held at the Examination Schools, Oxford, on Friday, the 26th June, 1903. The Chairman, Mr. C. Courtenay Hodgson (Cumberland), presided, and 24 members were present. The following were elected members of the Association:—Messrs. J. W. Jones (Isle of Ely), G. H. Smith (King's County, Ireland), W. A. Brockington (Leicestershire), W. V. Bushell (Norfolk) and C. G. Bone (Rutland).—As regards the general constitution of the Association, the following important decision was made in view of the operation of the new Education Act:—“Membership of the Association shall be open to the Director, Secretary or other chief salaried administrative officer organising or administering education under the County Councils or County Borough Councils: provided that, where there are separate co-ordinate officers in one administrative area, more than one may, in the discretion of the Executive Committee, be eligible for membership; provided also that this rule excludes no present member of the Association, so long as he be engaged as an administrative educational officer under a County or County Borough Council.”—Discussions took place upon the subjects of (1) financing of schools, (2) school attendance, (3) grouping of schools, (4) the scheme of the University of London for the inspection of schools and the award of school leaving certificates (published in “The Record,” January, 1903, pp. 118-26).—On the previous day the University in Convocation conferred honorary M.A. degrees upon the Chairman and the Honorary Secretary (Mr. J. H. Nicholas, Essex) of the Association.—The next meeting of the Association will be held in London in the autumn.—It may also be mentioned here, for the information of the officials of Local Education Authorities, that the second annual gathering of the North of England Educational Conference is to meet at Leeds on the 8th and 9th January, 1904.

II.—NATURE-KNOWLEDGE: ITS PROGRESS AND INTERPRETATION.

(a) NATURE-STUDY IN THE ELEMENTARY SCHOOL.*

BY HENRY BOULT.

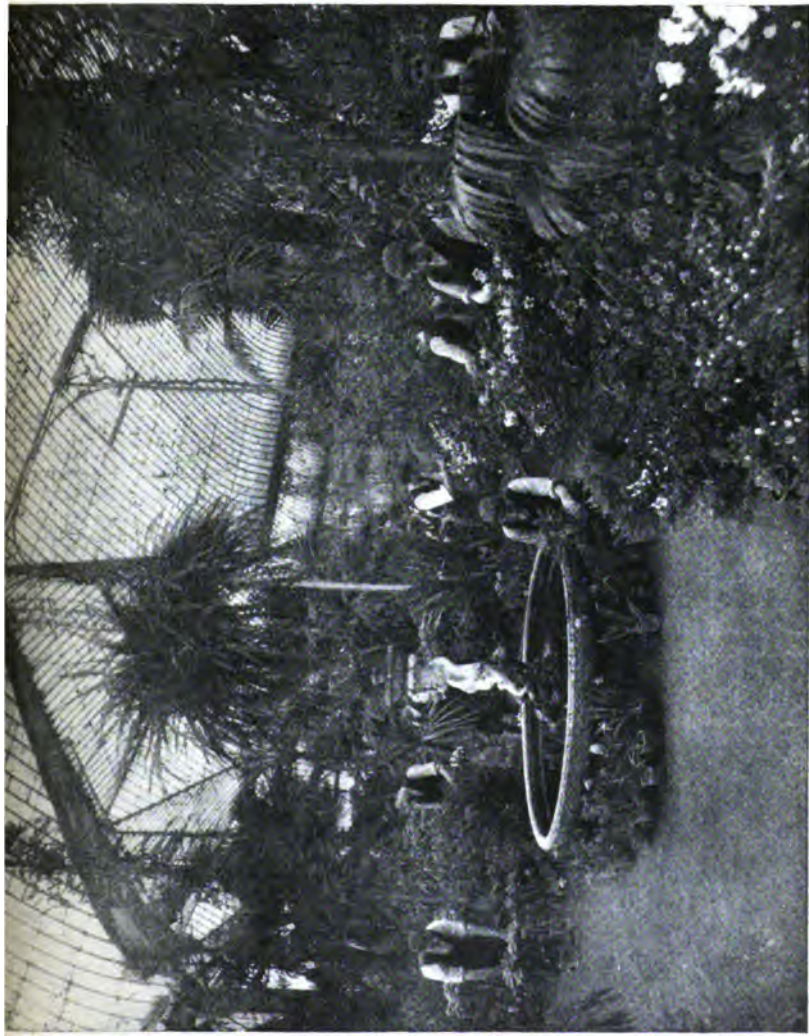
Introduction.

I am deeply sensible of the honour conferred on me in the invitation to address such an important assembly on the subject of "Nature-Study in the Elementary School." I am equally conscious of my own inability to press adequately its claims upon you; but it affords me some encouragement to feel that my audience is largely composed of those who desire to have given them a practical rather than an academic view of the subject. From an experience gained in working a scheme for two years, arranged for all standards of a mixed school of 300 scholars, it should be possible to place some facts before you that will be of service to teachers wishing to introduce some branch of "nature-study" in their schools, as well as to those who have already started the work. With this end in view I propose—(1) to consider the influence "nature-study" has on the ordinary work of the school; (2) to offer suggestions in regard to the formulation of a scheme; and (3) to advocate the incorporation of brushwork in the scheme.

(1) The Influence of "Nature-Study" in the School.

In the first place, let us glance at a few of the results that experience shows may be expected from the introduction of "nature-study" into the school. That which makes itself quickly apparent is the disregard this subject pays to the officially-recognised time-table. It has there very much the same effect as a typical boy has among the school chemical apparatus. Nature refuses to be trammelled by the regulations governing the other subjects of instruction. The buds we are studying decline to reach the required stage of development at the time specified for their examination in the time-table; the experiment set up in the morning gives its answer in the

* An address given by Mr. Henry Boulton, of the Chislehurst Road School, Orpington, at the Bristol meeting of the Bath and West and Southern Counties Society on the 30th May, 1903.



THE SCHOOL OF PRACTICAL GARDENING, REGENT'S PARK, LONDON (ARRANGING PLANTS).
(See page 385.)

afternoon; and the insect, so carefully watched in its chrysalis stage, emerges from its case when least expected. Surely the psychological moment for driving home the points taught by these changes is that moment when the lad or girl in charge of the specimen comes to you in front of the class all agog with the news of the transformation. Such experiences as these show that the teacher must be given greater latitude in the observance of the time-table. Do not misunderstand me. I do not wish it to be inferred that "nature-study" encroaches unreasonably on the time due to other work. What I do mean is that it is occasionally necessary to break into the lesson arranged for in the routine, to have two or three minutes' talk on some object which has just reached an interesting stage, or to examine the result of some experiment. A sudden change of the weather may render it imperative to send relays of scholars, say six at a time, to sketch a new stage of bud growth. But in all such cases a little arrangement on the part of the teacher will obviate any disorganisation of the usual work.

If Nature is to be intelligently studied, if she is to fulfil all we expect of her in the way of interesting our pupils and teaching them to observe her work accurately, she must be allowed to do her work in her own way, or we shall be bringing her into the schoolroom to fossilise her into mere illustrations for object-lessons.

Again, the introduction of "nature-study" leads to an improvement in the tone of the school. The strained relations which exist in some of our classes between teacher and certain pupils often arise from a lack of mutual understanding. The prevalence of this condition was one of the most deplorable features of the days when individual examination was rampant; but the substitution of inspection quickly led to a better state of affairs, as it then became possible to adopt more rational methods of instruction. Even then there was no common interest to draw teacher and pupil together. That has been left for Nature to do. With her advent into the school both are brought together to watch the curious developments of a germinating seed; the startling transformations of insect life; the voracious habits of a water-beetle; or the gradual growth of bud into leaf or fruit. Under her influence, your troublesome boy comes to you with the information that his newt has cast its skin, and inquires if you would like to see it. Or the boy who has got into disgrace by saying "shall" is part of the verb "to be," tries to make his peace at the close of the lesson by approaching you with the news that he has a water beetle one and a-half inches long, and asks how he can properly feed it. You quickly recognise these offers of the olive branch

so indirectly given, and the chats you have with the boys on their pets give you a greater hold over them than you had before. When it is remembered that incidents like these are of frequent occurrence throughout the school, it is easily seen that a bond of sympathy is gradually forged between teacher and scholars, which is a far greater controlling power than that usually understood by the word "discipline." The influence exerted by "nature-study" in other directions need not be referred to here, except to say that it tends to gain the object in view, namely, the cultivation, in an attractive form, of the observing and thinking powers of the pupils.

We come now to the more important part of our subject, viz:—

(2) Suggestions for the Formulation of a Suitable Scheme.

The preparation of any scheme must depend very largely upon the tastes of the head-teacher and the size of the school, though the latter will affect the arrangement of the classes rather than the syllabus. If the teacher be a botanist, his scheme will naturally be drawn up with a bias towards plant life; if he be an entomologist, the bias will be on the side of insect life. This is all very well within clearly-defined limits; but, if the syllabus for the school is to be attractive, it must be varied, and should comprise not only provision for the study of plant and insect life but also for what is generally understood as natural phenomena.

A little preliminary reading will be necessary for many. The books I found most useful were Percival's "Agricultural Botany," a book with a very large number of easily-worked experiments; Lord Avebury's "Natural History Lessons"; Cooke's "Ponds and Ditches"; and last, but by no means the least useful, a set of articles by F. H. Shoosmith in Vol. XXXII. of "The Teachers' Aid."

In preparing a scheme I found it an advantage to consider the school in two divisions—an "upper" with Standards IV. to VII., and a "lower" with Standards I. to III.

In the "lower" division, plant life is admirably adapted to form the basis of the instruction, and many elementary facts of seed germination and plant growth can be found out by placing broad beans, peas and wheat on damp flannel, sawdust or sponges; by growing scarlet runners and nasturtiums in the window; and by the growth of objects in the dark and in varying positions in the light. Interesting experiments may be worked here by the aid of chalk boxes. Take six and knock one end off each. Fix two together by their dovetails, and you have three tall boxes. Slide the lids

into two of these, and at the top of one bore a hole the size of half-a-crown. The third box, shut in with slips of glass instead of the lids. There are now three tall boxes, one in which all light is kept out, one in which light is allowed to enter at the top, and the other where light is freely admitted all down the front. Now sow four nasturtium or other seeds in each, and let the class note the result. Again, take the lid from a chalk box, and bore some holes the size of a sixpenny piece all round. Fill the box with earth and invert it in a dish, so that it can be easily watered. Now place through each hole a seed, and let the class watch for results. The effects of red, green, violet and white light may be shown by growing peas in chalk boxes covered with glass of the required colour. In order to compare a *collection* of specimens grown in the dark with another set kept in the light, two chocolate boxes can be used, and a potato, onion, bean, pea and barley-grain grown in each on damp sawdust. One box may then be placed in an envelope of brown paper and the lid removed from the other to admit the light. A pleasant feature in the study of this branch, of "nature-study," so far as my experience shows, has been the keenness with which the teachers have taken up the work, and the ingenious methods adopted by them to get the class on the road of discovery. In this division, the changes of insect life can be familiarised to the scholars by raising silkworms and spiders from eggs, and by allowing them to examine the specimens of the first class. In Standards I. and II., the keeping of a weather-chart and the erection of a cricket stump in the playground for the testing of shadows, will give all the needful material for observation lessons in natural phenomena. This subject, however, should receive more attention in Standard III. by lessons on winds and their effects; evaporation; clouds and rain; snow; hail; springs; and the apparent movements of the sun. Plant life might be studied here with the object of revising the previous year's work by the growth of different specimens, and the study begun of compound flowers by means of the dandelion and daisy; while various seeds can be sown to give specimens illustrating the parts of plants providing food for man. It is a good plan to have, in each of these lower classes, a diary placed in a prominent position on the wall, containing brief notes on all the practical work done and the observations made by the scholars.

In the "upper" division, the work of Standard IV. may be confined to plant life, so that more time may be given in the higher Standards to natural phenomena. The structure and germination of seeds; the root; shoot; bud; leaf; flower; fertilisation and seed

dispersal; with the many experiments by which much of the information is found, form quite enough for a year's syllabus for Standard IV.

In Standard V. this part of the work can be extended by taking up the study of the bulb and corm, and the adaptations of flowers to secure cross-pollination. The necessity for cross-fertilisation may be shown by the efforts of flowers to secure it. Thus, the begonia, vegetable marrow, white campion and the hazel may be examined as examples of separate pistillate and staminate blooms; the blossom of the apple, pear and nectarine to show cases where the pistil of a flower ripens before the stamens; and the nasturtium and tulip where the stamens ripen before the pistil. The subject of insect fertilisation may be inquired into by growing clumps of yellow nasturtiums by the side of red ones, and by growing white sweet peas next to pink ones. The seeds from these, sown next year, will show to what extent cross-fertilisation has taken place. By covering selected flowers with muslin, and plants like the primrose and wallflower with muslin cages, it can be found whether the flowers under examination self-fertilise.

Insect and aquatic life should be watched from specimens brought by the scholars, or obtained as a result of a class excursion. These should be put under the charge of monitors, and changes reported and recorded by brushwork drawings. The chrysalis stage is an easy example to reproduce in colour. The caterpillar is slightly more difficult, although still within the capacity of Standard V. pupils, but the fully-developed stage must be given to the more capable scholars. In this way the life-history of the object under observation, if accompanied with brief notes, is preserved in a form easily revised. In addition to this, the syllabus for Standard V. might arrange for lessons on air and water; soils; ventilation; filtration; wells; the thermometer and barometer. The scholars would thus be prepared for the experimental work of the next class.

Provision should be made in Standards VI. and VII. for more individual work on the part of the scholars. Some may be put to watch the growth of a chestnut over water, or the gradual formation of fir cones on a neighbouring fir tree; and some to inquire into the subject of "catkins." In all cases developments should be noted and, when possible, recorded by brushwork drawings. To others may be given the duty of similarly treating developing buds, or the stages of insect and aquatic life, or the management of special experiments, such as those being carried out in the class plot on, say—"cross fertilisation," "the development of double flowers," or "the effect of manuring." A large amount of the work in this

class should be of an experimental character. Within the compass of a twenty minutes' address, it is not possible to enter into the details of our syllabus; but I may say it provides for a number of experiments by the scholars on plant life, and for about 30 experiments on air, water and soils. Concurrently with this work, a course of field-measuring lessons might be arranged for the boys on some of the afternoons when the girls are sewing. This is a subject in which the lads become much interested. Its practical character appeals to them, and they delight in preparing their "field books," in constructing from them carefully-drawn plans, and in the calculation of areas.

(3) **Brushwork—and Schemes of "Nature-Study."**

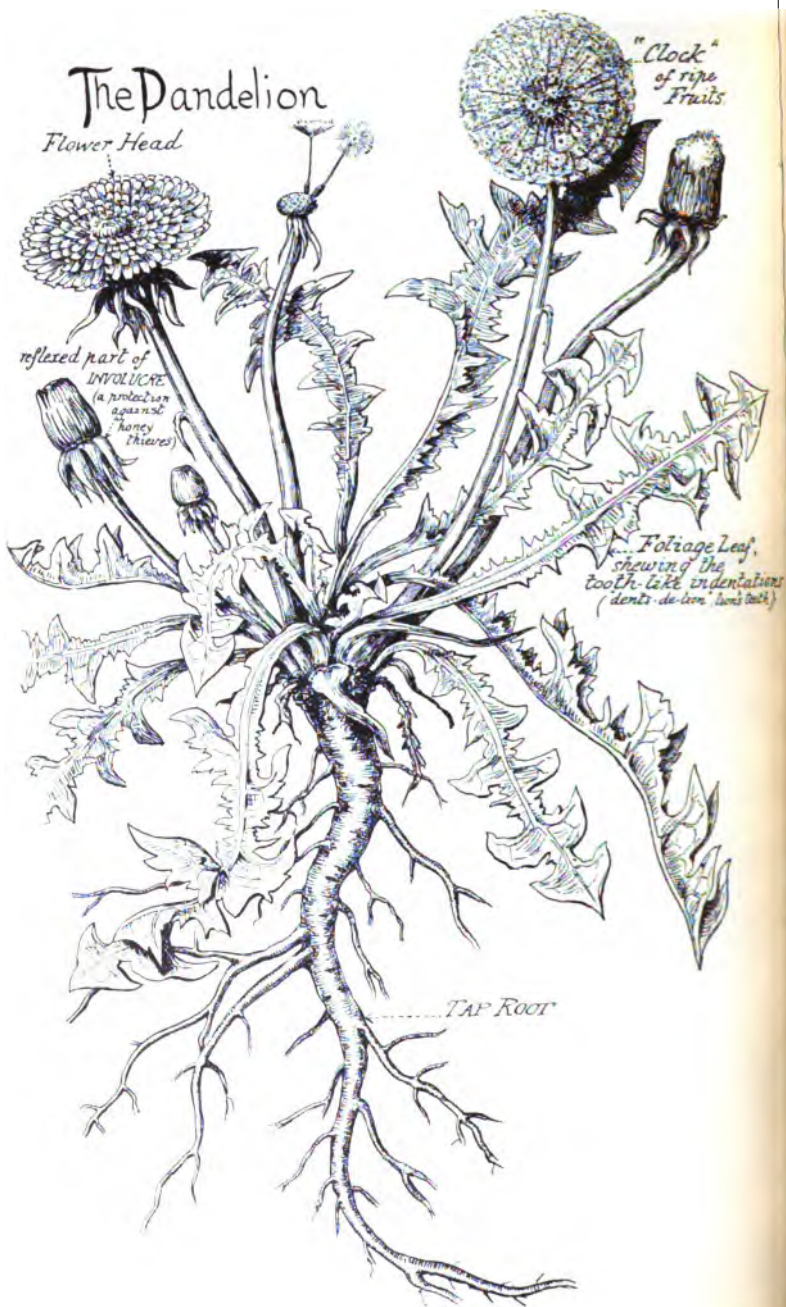
Finally, is it advisable to include brushwork in our scheme of "nature-study"? If we are to judge by the books so far published, brushwork is an effort to train scholars into correctly copying conventional forms in colour, with the object of teaching designing. It is claimed that worked on these lines "it fosters a love of the beautiful." I entirely sympathise with those teachers who hold that training in designing is outside the work of the elementary school, and that the time spent in attempting it can be much better employed. To the statement that such copying "fosters a love for the beautiful," I deferentially suggest we have more effective means at hand for doing this than in the mere placing of colours in juxtaposition. On the other hand, if the introduction of *brushwork* means bringing into our schools an ally that will assist us in training the children to observe correctly and to memorise *what they see*, then I am strongly of opinion that it should have an important place in our scheme of "nature-study," but on one *condition*—the work of the scholars should be judged not from the standpoint of artistic merit, but from that of accuracy in delineating *and* colouring those details of the object which the teacher desires to impress on the minds of the pupils. It has been said by *some who* advocate pattern brush-drawing, that it is too difficult a task for children to copy, in colours, natural objects. Our experience has proved this to be an entirely incorrect statement. If the start is made in Standard V. and upwards with the simplest natural forms—a shoot in Winter or Spring, a leaf in Summer, or seed pod in Autumn—it will be easy to lead the class by carefully-graded steps to the more difficult forms. We began last year, the month of February, by giving about half-a-dozen lessons in "blob" and "line" work, in order to give facility of manipulation with the brush. In March, shoots of the lime with undeveloped

buds were handed out, and the results were so encouraging that we arranged to continue the work as a study in bud position. Bud development into leaf, flower and fruit followed; and by the end of June an exhibit of brushwork from natural objects was prepared by the scholars for the Nature-Study Exhibition held in London last year, comprising illustrations of bud position; development of bud into leaf, flower and fruit; bulb and corm development; fruit spurs; fertilisation dodges; and stages of insect and aquatic life. Some of the best work was done by girls, who, unlike the boys, had received no previous instruction in drawing. This exhibit was awarded a bronze medal. Lest some may think such results can only be expected under exceptional circumstances, allow me to say, for their encouragement, the staff is only what might be expected in a rural school, and only one has a drawing certificate—that known as the old “D.” This should be a sufficient answer to the statement that such exercises are impracticable. Winter or Spring is the best time to begin brushwork, as then the natural objects we are studying are in their simplest forms. The positions of buds on twigs and the chrysalis stage of insect life are easy to represent in colour; and the practice gained will give the necessary skill to reproduce, in colour, the whole life-history of a bud, bulb and insect, reserving the most difficult forms for the advanced pupils. Brushwork, carried out on these lines, will be found to give added interest to the “nature-study.” The children will watch more keenly for developments of the objects under observation if they know they may have to copy them; and the act of reproducing the shape and colours will lead to a greater concentration of mental effort on the part of the child.

For these reasons, and also because the skill to make a satisfactory copy is so readily acquired, I strongly advise teachers to embody brushwork in their “nature-study” schemes.

At the close of the address, several brushwork drawings from natural objects, done by the scholars of the Orpington School, were passed round to show the method of work.

The Pandelion



(b) A TYPICAL TEACHERS' LEAFLET.

BY ETHEL A. M. WEBB.

FOREWORD.

This leaflet is not intended to represent the subject-matter of a single definite lesson. The various observations are to be made and the various exercises given to the children in the last 15 minutes of any one lesson during each morning; thus, most of the work would be completed in the course of a week, although some of the supplementary exercises would extend beyond this time, and could form the material for subsequent lessons.

THE DANDELION AND HER CHILDREN.

FIRST EXERCISE.—Let the children try to find some **dandelion plants**, and make a list of the places where these are found:—for instance, one child may find some on a railway bank, another may find them in a garden-bed, or at the road-side, or rooted in an old wall.

POINTS TO BE BROUGHT OUT.—(a) The different growth of the plants, corresponding to differences in environment;

(b) The universality of their distribution;

(c) Their usual occurrence in *cultivated ground* near the dwellings of man;

(d) That the dandelion does not form well-marked **colonies**, like the stitchwort, rose-campion, nettle and others.

SECOND EXERCISE.—Get the children to dig up dandelions and discover for themselves the depth of the **tap-root**, which may often exceed three feet in length.

SUPPLEMENTARY EXERCISES.—Set them to make observations on other weeds, dividing them into those with *tufted fibrous roots*, which can be pulled up by hand (shepherd's purse, spurge, groundsel, goose-foot), and those with *tap roots*, such as the dandelion and dock. Let the children cut off the tops of some of the latter and watch what happens in a week or two [another collection of leaves will appear, owing to the fact that the injured root can send out new shoots].

NOTE.—Probably the top of the root will be eaten away, and in the cavities may be found small **slugs**, either cream-coloured (*Agriolimax agrestis*) or dark grey (young *Arion hortensis*). These might be transferred to a vivarium, and fed upon lettuce, and their habits studied. Also in the ground, just where the old leaves form a ring of decaying vegetable matter, a considerable number of

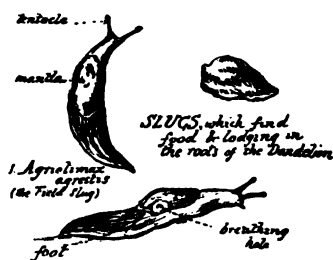


FIG. A.

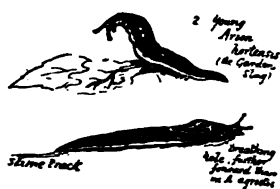


FIG. B.

earthworms will most likely be found. Some of these will be the small, full-grown chestnut worms (*Lumbricus castaneus*) showing a thickened girdle (**clitellum**), while others have no such band, and are the young of various other larger species. The children might be led to compare the slug with the worm, and the following facts brought out:—(a) they are both soft-bodied animals without a backbone, but one is segmented and the other not, while neither has jointed appendages (thus, both are distinct from the **insects** with their horny external covering and their jointed antennæ, etc.)

THIRD EXERCISE.—Lead the children to observe the dandelion plant as a whole.

POINTS TO BE BROUGHT OUT.—(a) The **green leaves** growing in a rosette (radical);

(b) The **tooth-like indentations** in the leaves (the origin of the name "Dent-de-lion," or lion's tooth);

(c) The "**flowers**," made up of many little **florets**, growing on a button-like platform;

(d) The **milky juice** of the plant;

(e) The "**clocks**" or heads of fruits.

SUPPLEMENTARY EXERCISES.—See who can find the greatest number of different species (1) with radical leaves, or (2) with heads of flowers, or (3) with a milky juice (spurge, sow-thistle, poppy). Let the children offer each of the milky-juiced plants to a rabbit, and see which it will eat. Why should it not eat all? Because some milky juices are poisonous. The children might also be allowed to make dandelion tea, by cutting up the roots and pouring boiling water on them, or by making an infusion of dried flower-heads. They might be told that dandelion tea is a cure for some kinds of indigestion and for jaundice.

FOURTH EXERCISE.—Examine a **flower head** more closely. Notice the outer green protecting leaves (**involucre** of **bracts**) and the various areas marked A, B, C and D in Fig. D. (p. 301).

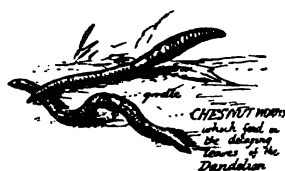


FIG. C.

Remove a floret from region B (see Fig. E), and lead the children to observe:—

POINTS TO BE BROUGHT OUT.—(a) The yellow **petals**, looking like a strap, with five little points on the free end, while the lower part forms a short **tube**.

(b) The shining white hairs (**pappus**) at the base of this tube.

(c) The short stalk-like structure which joins the petal-tube to

(d) The green oval **fruit**.

(e) The double crook-like object (the **stigmas**) rising from out the tube.

(f) Some withered yellow things (the **anthers**) making a kind of cylinder round the stalk (**style**) which belongs to the stigmas.

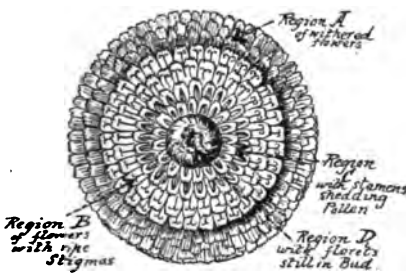


FIG. D.

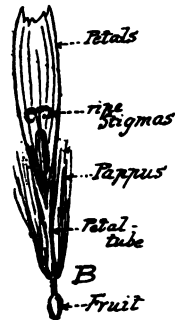


FIG. E.

In region A (see Fig. F), the stigmas and petals have begun to wither, while in region C the florets appear as in Fig. G ;



FIG. F.



FIG. G.

the **stigmas** are folded together and are shooting up through the **anther-tube**, and are covered with yellow grains (**pollen**). The **stigmas** act as a **ramrod**, driving up the pollen, as it is shed inwards by the **anthers**.

[The stamen of a **lily** might with advantage be used here, and its **pollen-sacs** and mode of opening shown to the children.]

For the formation of good seed, the stigmas in the double-crooked state (at which time they are ripe) should have pollen placed on them. This is called fertilisation. How is this to be done?

FIFTH EXERCISE.—The children must watch the dandelion and keep a record of **insect-visitors**.

POINTS TO BE BROUGHT OUT.—(a) That a bee will alight first on the *edge* of the flower-head and then crawl towards the centre.

(b) That it will fly away, covered with yellow pollen.

(c) That it will almost certainly go directly to another dandelion plant.

(d) That some of the pollen on it will be scraped off by the outer ripe stigmas of the second flower.

See if you can find the position of the honey glands or **nectaries**



FIG. H.

by watching the actions of the bee. You will also, in all probability, find numerous black ants and small beetles at the bases of the florets. These are *thieves* (see Fig. H) who steal the honey, often without doing the work of fertilisation.

N.B.—In many cases the beetles simply "roost" in the warm flower-heads, which form a convenient shelter during the night.

SUPPLEMENTARY EXERCISES.—Help the children to notice devices in other plants for preventing the theft of honey:—downy hairs (mullein), sticky hairs (London-pride), reflexed calyxes (bulbous buttercup). Get them to observe that there is some provision for self-protection in the dandelion, as part of the involucre turns back, forming a sac-like cavity in which creeping insects get lost as they come up the stalk.

Ask the children if they can think of any reason why:—(1) the stigmas in region B are ripe while the stamens in region C are shedding pollen; (2) the bee should be led by the shape of the flower-head to crawl inwards.

Answers to be obtained:—(1) so that the stigmas and stamens in the same flower should not be ripe at same time; (2) so that the pollen from other flowers in the *same flower-head* should not fertilise the stigmas.

When pollen from one plant is transferred to the stigmas of another plant of the same kind, the process is called cross-fertilisation, and this is usually necessary for the production of the best possible seed. How can this be done? By insects, as in the dandelion, by the wind, by water.

SUPPLEMENTARY EXERCISES.—The children should try to find other examples of insect-fertilised flowers and examples of flowers fertilised by the wind, and of self-fertilised flowers. They should also be led to observe other more complicated devices for securing cross-fertilisation (*e.g.*, in the sweet pea, primrose, orchis, etc.).

SIXTH EXERCISE.—Examine ripe and partially ripe heads of fruit. Notice the lengthening of flower-stalk which takes place as the fruits ripen (one measured proved to be two and a-half feet in height, while the stalks of the flower-heads on the same plant were not quite nine inches). What is the reason for this? To allow the wind to reach the ripe fruits. Why should this be necessary? *To blow them away to a distance from the mother-plant.* Blow off some of the ripe fruits out-of-doors on a windy day; put some poppy seeds in the palm of your hand and blow them away, too. What prevents the dandelion fruits from falling to the earth as quickly as the poppy seeds? The feathery pappus, which acts like a *parachute*. Trace the courses of some of the flying fruits. Observe what happens when they bump up against anything hard and rough. The pappus sticks to the obstruction, but the fruit itself breaks off and falls to the ground. The pappi of thistles have been found in great numbers, clinging to the bricks outside the window of a photographic studio in Regent's Street, London, about sixty feet from the ground.

NOTE.—It would be disadvantageous for the *flower-stalk* to be long, as the wind *might* blow the pollen about from one part of the flower-head to the other, thus interfering with the work of cross-fertilisation. Notice also that the stalks of the withered "flowers" and partially ripe heads of fruits lie almost flat upon the ground beneath the rosette of foliage leaves, well out of the way of the wind or browsing animals.

SUPPLEMENTARY EXERCISES.—The children should find (a) other fruits resembling those of the dandelion, and note differences among the pappi;

(b) Other fruits and seeds dispersed by the wind (the wild clematis, or "old man's beard," the seed of the willow-herb, willow, maple, ash, etc.);

(c) Fruits dispersed in other ways (*burr-fruits*, such as the burdock, robin-run-in-the-hedge and geum) *sling-fruits*, such as the wild geranium, broom, etc.

They should also try to germinate dandelion seeds. Those of the current year will probably not germinate, but seeds kept from last year should do so at once. Why is this? Because many seeds naturally go through a resting period—the winter, before they sprout, and they obey their instinct even under unnatural conditions.

III.—BRITISH FORESTRY.

THE EDUCATIONAL AND INDUSTRIAL OUTLOOK.

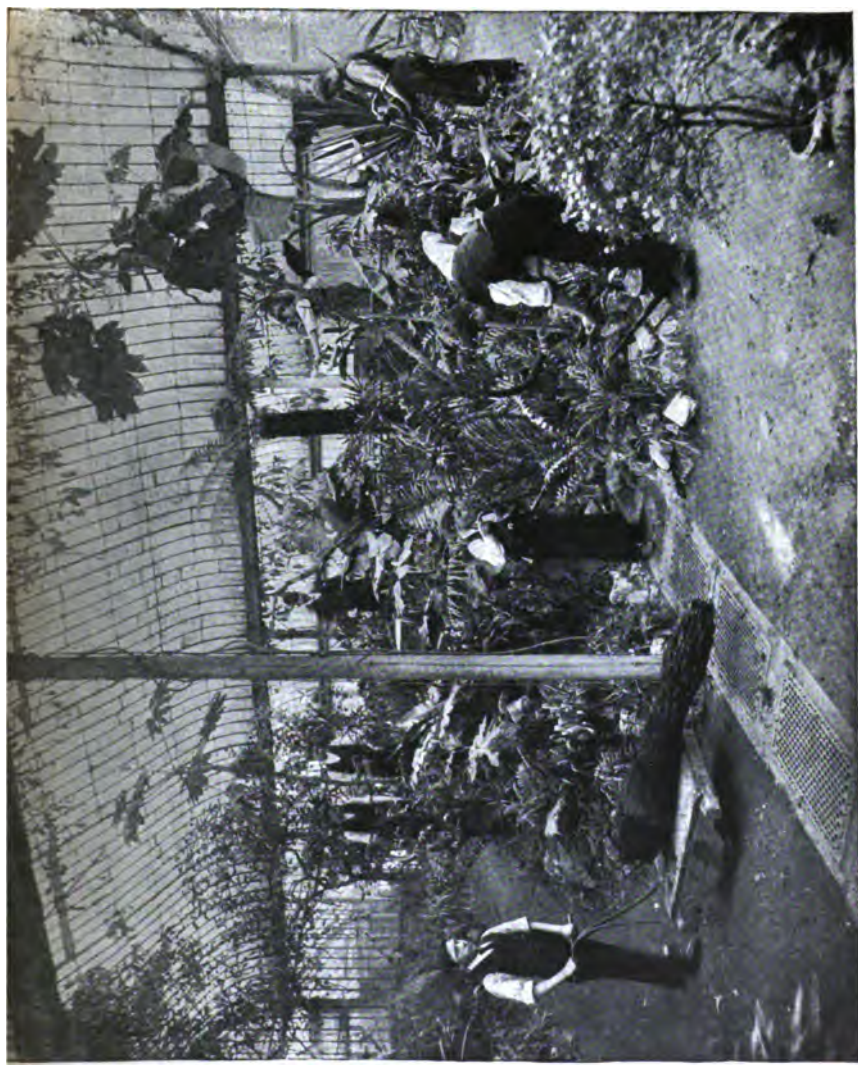
REPORT OF THE DEPARTMENTAL COMMITTEE OF THE BOARD OF AGRICULTURE.*

INTRODUCTION.

The Committee . . . appointed on the 20th February . . . [i.e., 1902] to inquire into and report upon the present position and future prospects of forestry, and the planting and management of woodlands in Great Britain, and to consider whether any measures might with advantage be taken, either by the provision of further educational facilities or otherwise, for their promotion and encouragement, have agreed to the following report :—

We have held six sittings for the purpose of taking evidence, and have examined witnesses from among the various classes concerned with our woodlands. These witnesses have comprised the Earl of Selborne, Lord Glanusk and Sir John W. Ramsden, Bart., representing owners of woodlands; among estate managers and agents, Mr. A. Slater, Land Steward to H.M. The King at Osborne; Mr. A. Vernon, now President of the Surveyors' Institution; Mr. D. W. Drummond, Estate Agent to the Earl of Cawdor and Sir James Drummond in South Wales; and, among foresters, Mr. A. C. Forbes, Forester to the Marquess of Bath, Mr. W. B. Havelock, Forester to the Earl of Yarborough, and Mr. A. Pitcaithley, Forester to the Earl of Mansfield. With the view of ascertaining whether British was at any disadvantage as compared with foreign

* The Committee consisted of the following gentlemen :—Sir J. F. L. Rolleston, M.P.; Mr. E. Stafford Howard, C.B., one of the Commissioners of His Majesty's Woods, Forests and Land Revenues; Professor W. Schlich, C.I.E., Ph.D., Professor of Forestry, Royal Indian Engineering College, Coopers Hill; Colonel F. Bailey, R.E., Lecturer on Forestry, Edinburgh University; Professor J. R. Campbell, B.Sc., one of the Assistant Secretaries to the Department of Agriculture and other Industries and Technical Education for Ireland; Mr. J. H. Lewis, M.P.; Mr. G. Marshall, of Godalming; Mr. R. C. M. Munro-Ferguson, M.P. (Chairman); and Dr. W. Somerville, D.O.C., one of the Assistant Secretaries to the Board of Agriculture; while Mr. R. H. Hooker acted as Secretary to the Committee, who heartily acknowledged the value of his services.



THE SCHOOL OF PRACTICAL GARDENING, REGENT'S PARK, LONDON (WATERING PLANTS). (See page 385.)

timber, and to what extent any alleged inferiority in the former could be remedied, we have examined Mr. S. Margerison and Mr. C. Hopton, on behalf of the Timber Trades Federation of the United Kingdom; Mr. J. H. Croxford, of Messrs. Price, Walker and Company, timber importers; and Mr. M. F. Roberts, who gave evidence as to the tests undertaken by the Postmaster-General to determine the comparative suitability of British and foreign timber for telegraph poles. Institutions interested in forestry were represented by Mr. J. Michie, Commissioner to H.M. the King at Balmoral, delegated by the Highland and Agricultural Society of Scotland; Mr. D. Robertson, Forester to the Duke of Sutherland, on behalf of the Royal Scottish Arboricultural Society; Mr. J. Davidson, Land Agent to the Commissioners of the Admiralty's estates in the North of England, Secretary to the English Arboricultural Society; and Mr. A. D. Webster, nominated by the Royal Horticultural Society. The necessity for the provision of further educational facilities has occupied much of our attention; and the scientific witnesses who have given special consideration to this subject comprise three members of the Committee, viz., Dr. W. Schlich, Professor of Forestry at the Royal Indian Engineering College, Coopers Hill; Lieut.-Colonel F. Bailey, Lecturer in Forestry at the University of Edinburgh, representing the Edinburgh University Court; and Dr. W. Somerville, Assistant Secretary to the Board of Agriculture, formerly Lecturer in Forestry at Edinburgh University, and Professor of Agriculture and Forestry at the Durham College of Science and of Agriculture at Cambridge University; while the latter University sent as its official witness Professor H. Marshall Ward, Professor of Botany. Evidence as to the existing administration on various points connected with woodlands has been received: from Major P. G. Craigie, C.B., Assistant Secretary to the Board of Agriculture, with regard to the collection of statistics of woodlands and the granting of loans by the Government; from Mr. C. O. Minchin, of the Board of Inland Revenue, regarding the incidence of succession and estate duties; and from Mr. J. T. Maxwell, of the Scottish Local Government Board, with regard to the incidence of local rates in Scotland; while the English Local Government Board have also furnished us with a memorandum regarding such rates in England. In addition, evidence as to the availability for afforestation of the catchment areas of municipal water supplies was tendered by Mr. J. Parry, Water Engineer to the Liverpool Corporation.

We have also taken cognisance of the evidence given before the Select Committee of the House of Commons appointed in 1885,

and reappointed in 1886 and 1887, to consider whether by the establishment of a forest school, or otherwise, our woodlands could be rendered more remunerative. We considered that it was unnecessary to recall the witnesses examined in 1885-7; but, in drawing up our present report, due weight has been given to this evidence, a digest of which, for convenience of reference, has been prepared and is printed as an Appendix to the evidence taken by us.

We have considered the recent publications of several authorities on the improvement of forestry in this country, and we have been guided by these as well as by the evidence taken. A digest of some of these publications is printed as an Appendix.

The Select Committee of the House of Commons stated in their report that the possibility of improvement in the management of our woodlands was so great that, even as regards those belonging to the State, "the difference between skilled and unskilled management would itself more than repay the cost of a forest school. This area is trifling as compared with the extent of private woodlands." They pointed out that almost all civilised States have forest schools, that in the United Kingdom there are large areas of waste, and that the woodlands of the Empire as a whole are greater than those of any other State.

We endorse the conclusions of the Select Committee of 1885-7 as regards the neglected condition of forestry in Great Britain, the possibility of improvement and the necessity for the provision of better means of education. But as regards that Committee's final recommendation—the appointment of a Board of Forestry—this is not now required, since forestry is one of the subjects committed to the charge of the Board of Agriculture.

THE PRESENT CONDITION OF FORESTRY.

The present Departmental inquiry starts very much at the same point as did that of the Select Committee in 1885. It is true that a few scattered efforts have since been made to adopt methodical treatment; and a wider appreciation of the advantages of close canopy, clean timber and heavy crops is discernible. Yet, on the whole, there has probably been a further reduction of the already inadequate stock of timber in the wooded area. The more intelligent of our foresters have come to recognise the shortcomings of our practice, and, within the limit of their opportunities, have endeavoured to effect an improvement. Attempts have also been made to organise some forestry instruction. The classes at the University and at the Royal Botanic Garden of Edinburgh, and

the lectures given at a few agricultural colleges and under the auspices of one or two County Councils, have been well conducted.

Waste Lands.—As regards the question of the extension of the forest area, it is shown on the highest authority that there is in these islands a very large area of waste, heather and rough pasture, or land out of cultivation, amounting in all to 21,000,000 acres, on a large proportion of which afforestation could be profitably undertaken. Regular forest book-keeping is rare in Great Britain; but we believe the various estimates of profit, obtained from the cultivation of timber, which have been laid before both inquiries, to be substantially correct. These show that excellent returns, even with indifferent management, have often been obtained from plantations formed on land of little or no value for any other purpose.

Profits in Germany.—Dr. Schlich gives corroborating evidence from the Continental forests, where accurate book-keeping has long been practised. As an example, he says, referring to Saxony:—"I have selected one of the ranges which is by no means the best. It is a district called the Anthonsthal Range, an area of 4,072 acres, managed by a highly-trained forester, situated in the Erzgebirge, between an elevation of 1,500 and 2,700 feet. . . . Distinguishing between four quality classes of soil, and calling one the best and four the least, the average quality is 2·7; it is, therefore, between second and third quality. The species grown there are 93 per cent. spruce, three per cent. silver fir, Scottish pine and beech, and four per cent. blanks for certain reasons. The growing stock in this forest in 1839 averaged 2,128 cubic feet per acre, and in 1893 it was 3,276 cubic feet. The receipts per acre were 48·3s. and the expenses 10·3s., the net receipts being 38s. per acre per annum." This statement refers to land not worth more than four shillings per acre per annum for agricultural or pastoral purposes.

Importance of Afforestation.—The importance of afforestation in such a district as the Highlands of Scotland will be readily grasped. Rough land is extensive, capital as a rule scarce, and great woodland areas, where well managed, have proved financially successful, while profits on sheep farming have of late years reached a very low point. Land under forests would give healthy employment to a much greater number of persons than the same area under sheep. Many hill pastoral farms have one shepherd to three or four thousand acres, but much of such land, for various reasons, is unsuited to the growth of timber for profit. We believe that we are well within the mark in assuming that land

quite capable of producing high-class timber employs only one shepherd per 1,000 acres if used as a sheeprun ; while all the evidence on this point goes to show that similar land when under timber gives employment to at least one man per 100 acres ; and this without taking account of the labour requisite to remove and work up the timber. The possibilities, therefore, of forestry as a means of furnishing remunerative labour to an increased rural population are great.

Afforestation of Waste Lands.—It will be found in our evidence that experts of high authority have recorded the opinion already expressed in many reliable publications that the world is rapidly approaching a shortage, if not actual dearth, in its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British timber imports. The great area of waste land in these islands which might be afforested, and with regard to which such valuable evidence has been led, thus becomes a matter of grave national concern. No individual effort is likely to cope with such extensive afforestation, not only because British forestry, as now practised, is inefficient, but because of the capital required, the time during which it remains sunk before producing income, and the lack of all security on private estates for continuous good management from the time that the forest is formed until matured timber is placed upon the market. We do not feel justified in urging the Government to embark forthwith upon any general scheme of State forests under present circumstances ; but the question of planting suitable waste lands under the control of the Crown, or over which the Crown exercises manorial rights, where it may be proved practicable and desirable, is, for the reasons above mentioned, worth the attention of the Commissioners of Woods and Forests.

In order that the country should be enabled to appreciate the extent to which a great rural industry might be created in the national interest, and to clear the way for any effective treatment of the allied questions of the utilisation of waste land and the increase of the woodland areas, we recommend that the Government department charged with the collection of land statistics should take steps to compile a statement of areas presumably suitable for afforestation in Great Britain.

Existing Woodlands.—The present condition of existing woodlands has been repeatedly and clearly reviewed by many eminent authorities. It is the common verdict that timber of the kind and quality imported in such large quantities from the Baltic and similar temperate regions can be grown as well here as anywhere ; in fact, it is a matter of common knowledge that

European "red wood" and "white wood," so highly esteemed for structural purposes, are yielded by the Scots pine and the spruce, two of the commonest trees of British woodlands. That foreign is so generally preferred to home-grown timber is in no way due to unsuitability of soil or climate, but is entirely due to our neglect of sylvicultural principles. It is hardly too much to say that until within the last ten years or so owners of woodlands, with few exceptions, failed to realise that the shape, size and quality of trees could be influenced by anything that they could do. They seemed to imagine that the character of the final product was largely a matter of accident, whereas it is mainly determined by management. They failed to recognise that cultural treatment which suits oak or ash is unsuited to pine or spruce; and so it has come to pass that British coniferous timber has been generally excluded by architects from building specifications. As another instance of this we may refer to the statements supplied by the Post Office as to the unsuitability of home-grown pine for telegraph poles.

EDUCATIONAL FACILITIES AND THEIR DEVELOPMENT.

That the yield of our woodlands can be materially improved admits of no doubt, and the evidence before us unanimously favours immediate and effective provision for bringing systematised instruction within the reach of owners, agents, foresters and woodmen. This has been on all sides emphasised as the first requisite in any project for the improvement of forestry, and consequently stands out as the cardinal point of our recommendations.

The Universities and other Centres of Instruction.—It is clear that the same class of instruction is not suitable for, and will not commend itself to, all the different grades of persons who have to deal, in some capacity or other, with woodlands. The natural centres for the instruction in forestry of the future owners and agents, under present conditions, are the universities and provincial colleges. Here additional facilities for theoretical instruction and practical demonstration are required. Certain witnesses examined before the Select Committee in 1885-7 expressed the opinion that forestry instruction might consist of special lectures bearing on tree growth, to be given by professors of chemistry, botany, geology or agriculture. Even now, if one may judge by what sometimes passes under the name of forestry instruction, this idea is not altogether extinct. It cannot be too strongly emphasised that such instruction alone is not forestry, but

only the necessary foundation on which the pupil grafts the study of forestry proper, that is to say, the profitable production of trees grown in masses. We consider that the scope and character of the instruction given at Edinburgh University, which we visited, is the least that should be aimed at, though it might, with advantage, be carried considerably further, and that better facilities should be provided. Similar courses should be provided at Oxford and Cambridge, as well as in all the agricultural colleges, and colleges with agricultural departments, which are subsidised by the Board of Agriculture or by the Scotch Education Department. Our attention has been directed to recent developments in the United States of America, where forestry instruction, both in the lecture-room and the woods, has been introduced into many of the universities and colleges. At Yale and Cornell, for instance, students may proceed to a special degree in forestry.

Even where access may be had to private woods it is exceedingly desirable that collegiate instruction in forestry should be illustrated by means of example plots (the German *Forstgarten*). These are a considerable feature of the teaching in the University of Giessen and elsewhere on the Continent, and they have been reproduced, on a small scale, at Coopers Hill and on the Northumberland Demonstration Farm. If each plot be made of sufficient size, say, three acres, it is capable not only of demonstrating principles and the effect of mixing and management but also, within limits, of yielding comparative financial results. A total area of 100-200 acres at each centre would be necessary and sufficient for this purpose. In confirmation of this opinion, Professor Schwappach allows us to quote his view that the plots at Giessen (the whole area of which is only 16½ acres) are too small, and that the serious effects of curtailed space are already being felt. We have made an inspection of several areas of land near Cambridge, one of which could doubtless be bought for such a purpose, and similar facilities could probably be secured near Edinburgh and other centres of instruction.

The desirability of a great State Forest School on the model of Nancy or of Eberswalde has not escaped our attention, but we do not feel justified, under present conditions, in recommending so great an outlay as would be necessitated by the creation of such an institution. We think, however, that many of the advantages of an institution of this type could be secured at a comparatively small outlay by the transference of the forestry department at Coopers Hill to a university centre. This would at once place the highest form of forestry education available in this country within the reach of a large proportion of the prospective land-owners and land-agents,

while the advantages to the candidates for the Indian Forest Service of three years' residence in a university are obvious. The Colonies make increasing demands on this country for qualified forest experts, and we anticipate that an increasing number of lecturers and advisory experts will be required for work in the United Kingdom. Our universities contain many students thoroughly well grounded in natural science and economics who, at the end of their period of study of pure subjects, would readily be attracted to the study of forestry and would rapidly qualify as forest experts.

For effective instruction, however, a large area of woodland for purposes of practical demonstration is an absolute necessity. Professional equally with scientific witnesses pressed for instruction or demonstration areas under State or corporate control so as to secure that continuity of management without which a sustained annual yield and a maximum return is impossible.

There has been a growing feeling of late years amongst those who interest themselves in forestry in this country that no scheme for the general improvement of present conditions can be satisfactory that does not provide for the establishment of at least two large State forests which shall demonstrate the most perfect technical and economic developments of the art of forestry. At present there are no large wooded areas in this country—whether public or private—which foresters and others may visit for the purpose of seeing the working and results of systems that they may think of adopting: they are unable to move along the path of progress because no concrete examples of typical systems are available for inspection. Then, again, there is a feeling of uncertainty in regard to the expenses and profits of forestry that must always exist where figures are taken from private accounts; and this, even assuming that such accounts are reliable and sufficiently detailed and are open to inspection. These State forests would also serve as the training ground for many of our young foresters, whose education will be dealt with later.

Such areas, properly organised, would afford as striking an object-lesson as any to be found within the sphere of technical education; every proved and appropriate method for the economical and effective management of woodlands and the utilisation of forest products would be employed under competent direction. But to be of the highest value such forests must not only exemplify definite silvicultural systems; they must also be managed as commercial undertakings, so as to produce the best financial results.

We have stated that we consider it necessary to have "example plots" in connection with the universities and other centres of

instruction, as well as two large State demonstration areas; and it may be well here to explain why both are required. The example plots should embrace a comparatively small area, and comprise an arboretum or collection of specimen trees, and also an area devoted to the experimental planting and growth of trees in masses up to a certain age. Such an area cannot, from the very nature of the objects aimed at, be expected to yield a profit or to give conclusive results as to the economic growth of trees in masses. The demonstration forest, on the other hand, would be managed according to a working plan, drawn up so that the area should yield as large a profit as possible. Forest students from the universities and others would spend a week or two at a time, or longer, in the demonstration forest; but they, and the lecturer, also require an area close at hand to which resort can be more frequently made. As showing more exactly the uses of such example plots we have printed in the Appendix a summary description of the *Forstgarten* attached to Giessen University.

We are of opinion that not more than two such demonstration areas—one in England and one in Scotland—are at present required. In order to provide suitable centres for fully demonstrating the principles of forestry, these areas should be large, preferably from 2,000 to 10,000 acres, and should include within their boundaries as great a variety of soil, aspect, altitude, etc., as possible, so that they may afford practical illustrations of the proper management of forests under all sorts of conditions.

In England, with its crown forests, an instruction area could be readily made available with the consent of the State and the co-operation of the Commissioners of Woods and Forests. In Scotland, where the amount of land remaining vested in the Crown is small, an area should be bought, and it would not be unreasonable to ask the State to re-invest in land to the extent of, say, £50,000. We think that, inasmuch as the benefit to landowners to be derived from the instruction and example provided by such a demonstration forest will be very considerable, it would not be too much to expect that they should co-operate by giving a guarantee to the Government for the interest on the purchase money.

With a view to the selection of suitable districts for demonstration areas within reasonable reach of the centres of instruction, and, as above indicated, confining our attention for financial reasons to Crown forests so far as regards England, we have inspected the Forest of Dean in Gloucestershire and the Alice Holt Woods and Bere Forest in Hampshire, as well as woods in the counties of Fife, Peebles, Perth, Inverness and Moray. Although covering an area somewhat smaller than that indicated above as the minimum

desirable, we consider that the Alice Holt Woods could be more readily brought into good working order, and could be made to serve as a useful object-lesson at an earlier date, than any of the other woods belonging to the Crown; and we accordingly recommend that they should be made available as soon as possible to serve as a demonstration area. As regards a locality in Scotland, we are not at present in a position to make any specific recommendation.

With regard to the training of young men who propose to take up land agency as a profession, and who cannot afford to spend three years at a university, we consider that facilities for imparting sound knowledge of the elements of forestry should be provided at the various colleges supplying instruction in agriculture in Great Britain. Inasmuch as land agents are entrusted with the management of large estates, which usually comprise a certain area under wood, it is clearly requisite that they should know how to turn that area, as well as the land under other crops, to the best account. We have it in evidence, however, that comparatively few land-agents possess a competent knowledge of forestry. Instruction in the elements of forestry should, therefore, form part of the regular curriculum at all such colleges; and we suggest that this subject should receive greater prominence at such institutions, in order that students may qualify themselves to undertake the efficient supervision of what is an important, and should be a profitable, part of many estates.

The Training of Foresters and Woodmen.—For working foresters or woodmen, whose prospective salaries do not at present justify their attending for any length of time at the universities or colleges, a practical training in the woods naturally forms the best basis of instruction, and for this the State demonstration areas already recommended offer the most suitable medium. But even here, if the foresters are to spend sufficient time in them to acquire a competent practical knowledge of their subject, the question of means presents itself; and, moreover, manual work must be supplemented by theoretical study. We accordingly recommend that student-foresters be taken on as employes in receipt of regular wages, and that classes be held, which they should be required to attend.

In order to provide for the instruction to be given in these demonstration forests, we suggest that the State should equip each of them with buildings, which would offer accommodation for a director and his assistant, and, if necessary, for ten to 20 student-foresters. We do not anticipate that the cost of the buildings would exceed £5,000 to £7,500 in each forest. The director should be placed in suitable relationship with the lecturers

at the various colleges, and would be responsible for the management of the forest and for the general conduct of the school, and would, at the same time, give instruction in silviculture and forest management, mensuration and valuation. His assistant would teach the subjects of the growth, structure and diseases of timber, the formation and properties of soil, and forest entomology. We anticipate that the annual expense of maintenance of each of these schools would be about £750, in which the chief items would be the salaries of the director and his assistant. The classes should be open to young foresters and woodmen selected by County Council Technical Education Committees or otherwise, the normal term of residence being two years. These students would thus work in the woods and receive systematic instruction. Experience of farm schools shows that young men can be boarded and lodged for ten shillings to 15s. per week. We are convinced that at a very early date, if not immediately, the advantages to foresters of the instruction to be gained in these areas would be so fully recognised that there would be keen competition to obtain an entry into the lower grades of the service, and that the whole of the manual labour required in the demonstration area would be performed by foresters who come to learn. As an example of what may be expected, we may point to the system at the Royal Botanic Gardens, Kew, where the labourers and gardeners are now recruited entirely from among qualified gardeners who are anxious to improve their knowledge by working there for a certain period and receiving instruction.

For such foresters and woodmen as are unable to leave their posts to go through the training in the demonstration forests, or for whom there are no vacancies, we recommend that the various agricultural colleges should institute short courses in forestry, similar to the short courses in agriculture and dairying which have been so marked a feature of technical education in recent years. The classes held in the demonstration areas should also, upon payment of a small fee, be open to students from outside, and not confined to the student-foresters. We suggest also that County Councils should offer small scholarships or bursaries to enable students to attend classes in forestry, while many owners of woods would probably find it advantageous to pay the expenses of their foresters so as to enable them to attend short courses. Lectures, under the auspices of the County Council, might also be given with advantage in neighbourhoods where woods are numerous, as has already been done in Northumberland and Aberdeenshire. Supplementary to the class-room instruction, and sometimes independent of it, the instructor should visit woods where the

owner or forester expresses a desire for advice, and should give practical demonstrations in planting, thinning, and the other operations of forestry. It may be pointed out that in the United States of America there is in the Department of Agriculture a Bureau of Forestry, equipped with a staff of field assistants, whose services in the preparation of working plans, and in the matter of practical advice on the ground, are at the disposal of private owners.

[The Committee next deal with such minor considerations as Local Rates, Estate Duties, Damage by Sparks, Ground Game, State Loans and Statistics of Woodlands.]

Municipal Waterworks Areas.—We have received valuable evidence as to the work undertaken by the Corporation of Liverpool to afforest the catchment area, around Lake Vyrnwy, of the water supply of that city, and some other Municipalities have also had similar schemes placed before them. We are of opinion that this is a direction in which a considerable amount of afforestation may usefully be done. To prevent all risk of contamination of the water supply, it is at the present day the policy to remove, as far as possible, all human habitations and farm buildings, as well as live stock, from such areas. These areas, therefore, however well suited they may otherwise be for the production of crops or the maintenance of live stock, are practically derelict, and yield no return, beyond that obtained from the sale of the water, upon what is usually a very heavy capital expenditure on the part of the Corporation. We desire, therefore, to draw the attention of Corporations to the advantages and profits to be derived from planting their catchment areas with trees, which ultimately will not only contribute materially to the retention of the rain that falls over the area, and thus assist in regulating the water supply and in preventing floods and water famines, but will tend to the purification of the water, and should also, properly managed, yield a fair and regular income on the capital expended. Such catchment areas, if they are to be thus utilised, should be placed under the control of a competent forester. And inasmuch as they will be under corporate control, and less subject to changes of management than land owned by private individuals, there is no reason why they should not also ultimately serve as demonstration forests and be available for the instruction of students. For example, the catchment areas of the Liverpool and Birmingham Corporation Waterworks, situated in Wales, within reach of university colleges possessing agricultural departments, could, with the consent of the Corporations concerned, be used for these purposes.

RECOMMENDATIONS.

(a) That two areas for practical demonstration be acquired, the one in England and the other in Scotland, of not less than 2,000 acres, if possible, nor over 10,000 acres in each case. We suggest that the Alice Holt Woods in Hampshire be made available as soon as possible to serve as a demonstration area in England, and that a suitable estate be purchased in Scotland, as convenient as possible to Edinburgh, for the same purpose. These recommendations would have to be carried out by arrangement between the Commissioners of Woods and Forests and the Board of Agriculture; and assistance should be looked for from local authorities, societies and individuals interested in forestry and technical education.

(b) That additional facilities for instruction be afforded by the appointment of a lecturer on forestry in connection with each of the Universities of Cambridge and Oxford, and that example plots, as defined on p. 312, be provided in connection with each of these centres and with Edinburgh.

(c) That a good grounding in forestry form an integral part of the curriculum of the colleges providing instruction in agriculture in Great Britain, and that short courses of instruction suitable for the requirements of young foresters be also provided there. Instructors should also be available for giving practical advice in connection with the management of woods, the owners of which desire an expert's opinion.

(d) That provision be made for the education of foresters and woodmen by employing students to work in both the demonstration forests, and that suitable buildings be erected on the ground for the instruction and, where necessary, for the accommodation of these student-foresters.

(e) That lectures be given, under the auspices of the County Councils, in neighbourhoods where there is a considerable area under wood, and that scholarships be offered in such counties to enable working foresters to attend courses of lectures.

(f) That the inequality shown to exist in the levy of the estate duty on timber be redressed.

(g) That the Government be urged to secure the early enactment of a Bill to protect owners of woods against loss by fire caused by sparks from locomotives.

(h) That the inquiry conducted in 1895, concerning the area of woodlands, be repeated by the Board of Agriculture, and that details concerning the character of the timber crop grown upon them be ascertained.

(i) That the attention of Corporations and Municipalities be drawn to the desirability of planting with trees the catchment areas of their water supply.



NEW ZEALAND (REPOUSSE WORK EXECUTED IN
METALLIC FINISH)

IV.—UNIVERSITY EDUCATION IN IRELAND.

FINAL REPORT OF THE ROYAL COMMISSION.*

Introductory Remarks.

In our last number (pp. 219-23) the principal conclusions and recommendations of the Royal Commission, appointed in 1901 to inquire into the question of university education in Ireland, were published in full, and it was intimated that the suggestions made by the Commission in regard to the subjects of higher technical education and co-ordination were too important to overlook: these are now recapitulated below in a slightly abridged form, and it is to be hoped that they will soon receive in the proper quarters that serious and immediate attention which they deserve. The evidence of certain witnesses, to which occasional reference is made here, will be found in the appendices to the First, Second and Third Reports of the Commission (viz., Cd. 826, 900 and 1,229 respectively). As regards the complete Report of the Commission, unfortunately it is not a unanimous one, the whole question having been much complicated by the Irish religious difficulty, to which reference cannot be made here. There is a general feeling, also, that the limited terms of the reference, by excluding Trinity College, Dublin, from the scope of the inquiry, hindered the institution of a university scheme that would be at once comprehensive and satisfactory to all parties. One member, Professor R. H. F. Dickey, M.A., D.D., who was appointed in the room of Professor A. W. Rücker, resigned, does not sign the report, and, of the remaining eleven members of the Commission, six, including the Chairman, sign with certain reservations. The Commission held 36 sittings, in Dublin, Belfast and London, and examined 147 witnesses, besides considering a mass of documentary evidence. Their report is divided into 13 sections, dealing respectively with:—(1) existing institutions for

* Royal Commission on University Education in Ireland: Final Report of the Commissioners (Dublin: Alexander Thom and Co., Ltd., Abbey Street.—London: Eyre and Spottiswoode. Cd. 1,483, 8½d.)

higher education, (2) defects of the Royal University system, (3) the religious difficulty, (4) results of educational defects and of the religious difficulty, (5) analysis of the proposed remedies, (6) the scheme of the Commission, (7) extern students, (8) requirements of the Queen's Colleges as regards equipment and endowment, (9) the higher education of women, (10) higher technical education, (11) co-ordination, (12) a department of Irish studies, (13) general conclusions and recommendations. In brief, the scheme recommended by the Commission is a Federal Teaching University—the Royal University with four constituent colleges, the three existing Queen's Colleges at Belfast, Cork and Galway, and a new Roman Catholic College to be established in Dublin. It abolishes the system by which degrees are obtained by examination only without collegiate training, but allows a period of three years during which existing students may complete their course or intending students may prepare for the proposed change. In view of the growing demand by women for education of a university type, which has hitherto been mainly promoted by private enterprise and liberality, the Commission propose that women should be granted practically the same university privileges as men.

HIGHER TECHNICAL EDUCATION.

In our inquiry into higher technical education, we have had the assistance not only of persons acquainted with the special needs and circumstances of Ireland, but also of several important witnesses qualified to speak as experts regarding the aims and methods of technical education generally. Much valuable information has been laid before us regarding the state of technical education and its relation to manufacturing and other industries in England, Germany and the United States

Distinction between Higher and Lower Technical Education.

The terms of reference relate to higher technical education only. A broad distinction may be drawn by regarding as "lower" the technical education which concerns itself with—

- (1) teaching the working man his trade;
- (2) teaching him such elements of science in application to his trade as will make him a more intelligent workman;
- (3) providing the preliminary steps of a ladder by which the exceptionally intelligent workman may qualify himself to pass from the position of workman to a position in which he may direct the work of others.

On the other hand, higher technical education deals with—

(4) the training in applied science of those whose business it will be to act as managers, designers, surveyors, superintending engineers and skilled employers of labour generally ;

(5) the training of teachers for lower and higher technical schools ;

(6) in its highest branches, the training of industrial scientific experts, competent to develop industries by bringing their scientific knowledge to bear on the improvements of old methods and the invention of new methods.

In regard to agriculture, a like broad distinction obviously holds between the lower technical education which may stimulate the intelligence of the agricultural labourer or small farmer and the higher training appropriate to a man who has to direct the farming of land on scientific principles.

Value of Higher Technical Education.

The highest, and in some respects the most valuable, product of technical education is the technical expert. In Germany, where he is turned out in large numbers and his value is most widely recognised, he has done much to create new industries. Striking instances are furnished in the comparatively recent rise in that country of the manufacture of steel, of fine chemicals, of optical glass, of scientific instruments and in the development of German electrical and mechanical engineering. Much the same is true of the United States. The polytechnics of Germany, Switzerland and Austria, and the technical schools (generally incorporated in universities) of the United States and Canada, now produce an enormous stream of young men who have received the higher technical education, many to the extent of becoming experts, and many more to the extent of being fitted to act as subordinate industrial leaders. It appears that this stream is rapidly absorbed into industrial life. The technical graduates who come from the American universities find places at once, and manufacturers are willing to pay them a reasonable stipend from the first in place of exacting a premium for admission to works. In England, which has lagged behind the United States and the Continent in this matter, signs are now apparent of an increased appreciation of the higher technical education. At Cambridge, and in the newer Universities of Victoria, London and Birmingham, the engineering schools are attended by increasing numbers of pupils, and the abler graduates now frequently obtain salaried positions in which they can gain practical experience without having to pay for the privilege. Mr. Reynolds' evidence may be referred to in

this connection as showing what the city of Manchester has recently done in the interests of technical education by establishing a school of technology with a very elaborate and expensive equipment.*

Expensive Equipment Necessary.

Elaborate and expensive equipment is in fact a characteristic of all modern technical schools of the higher class, and, within limits, is essential to their success. Much of the teaching is by the laboratory method; the students make experiments, measurements and tests, involving the use of costly apparatus. And, beyond this, the requirements have to be met of advanced students as well as of teachers, who are engaged in original research.

Importance of Research.

The importance of experimental research as a factor in the highest technical education can scarcely be too strongly emphasised. The training of technical students in research gives them, so far as such qualities can be imparted, the aptitude and habit of mind proper to those who have afterwards to attack industrial problems requiring novel applications of scientific method. No direct teaching of applied science in relation to any industry can be comprehensive enough to deal with all the questions which arise, or may arise, in the practical conduct of the industry. But a student who is trained in research will soon learn, when his experience brings him into contact with special problems, to devise means for their attack. It is by training in research, along generally appropriate lines, that the expert capable of advancing industries by the application to them of scientific thought is most effectively produced.

To teach research requires that the teachers should themselves have the habit of research, and that the other duties of their teaching should not be so exacting as to leave no room for this duty. These points have an important bearing (1) on the choice of teachers for the highest posts in technical education, and (2) on the amount of assistance they should receive.

Research Scholarships.

As regards the students, serious original research is, in general, only possible on the part of a small number of picked men, who have already completed the ordinary course of study. It is important, in the interests of the highest technical education, to encourage post-graduate work of this kind by means of scholarships

* See Appendix to Second Report, pp. 24, 25, q. 4,357, *et seq.*, q. 4,375-

which will enable some of the best students to devote themselves to research for one, or, in special cases, for two years, with the view of qualifying themselves either for technical teaching, or, more generally, for positions as technical experts in various industries. Our attention has been directed to the valuable results which have been secured by the institution of post-graduate research scholarships out of the surplus funds of the 1851 Exhibition, and we consider that in any development of Irish technical education liberal provision should be made of scholarships of a somewhat similar kind.

Advantage of Laboratory Methods of Instruction.

Besides this, much may be done at less advanced stages in the technical student's training to accustom him to observe and think for himself, by the adoption of laboratory methods of instruction, in which the student, by handling and using apparatus, is brought into closer contact with facts than is possible in the lecture room. The advantages of this are now so generally appreciated that it is not necessary to dwell upon them. They can be shared by a much larger number of men than the select few who go on to serious research. The work of the laboratory should supplement, not displace, that of the lecture-room. We are of opinion that practical laboratory work should form a large element in the teaching of engineering as well as of chemistry, physics and other sciences where its uses are obvious.

Relation of Higher Technical Education to the University.

Technical education of a higher type may properly form part of *the* work of a university, or it may be carried out in a separate institution in the nature of a polytechnic or school of applied science. The latter method is usual in Germany; but in America as well as in England the former course is more common. We should prefer to see this work undertaken by or brought into close relation with the universities where such a relation is practicable.

Question of Professors undertaking Professional Work.

In any case, it is essential that the professors responsible for the **higher** technical education should be in active touch with the **industries** on which their teaching bears. Subject to reasonable **safeguards** against neglect of professional duty, they should not **only** be permitted but encouraged to undertake professional work **as consultants** or otherwise. Apart from the consideration that it is **only** when allowed considerable freedom in this respect that the **best** men can be expected to take or retain technical professorships,

such freedom makes for the advantage of the teaching in several ways. The professor who, to use Mr. Grant Ogilvie's words, is "in effective contact with present-day practice," obtains and holds the confidence both of students and of practical men.* And it is to him that employers naturally turn when they are in want of scientifically trained young men.

Field for Higher Technical Education in Ireland.

It cannot be said that Irish industries offer a very large field for the employment of men who have received higher technical education. Apart from agriculture, brewing and distilling, the great shipbuilding, engineering and textile industries in the North should provide openings for a fair number, and there will be a considerable demand for men qualified to act as teachers in the schools which are being established by the Department of Agriculture and Technical Instruction. But the needs of the country in respect of technical education cannot be fairly measured by reference to the openings which Irish industries at present offer. In one view, indeed, the backwardness of Irish industrial enterprise might rather be urged as a reason for directing the minds of young Irishmen to subjects they are at present apt to neglect. There is no reason to suppose that Ireland does not produce as large a proportion as other countries of clever young men whose natural bent is towards applied science, and who, properly encouraged in that bent, would use their faculties to better purpose in that than in any other pursuit. We consider that such men should receive the education for which they are best fitted. If when they are trained they do not find employment in Ireland they will find it elsewhere, and it may fairly be hoped that some of the men who do this will return, with the experience they have acquired, to promote the development of industries in their own country. . . . It may be added that much of the expert work now done in Ireland is not done by Irishmen. We have been informed that when technical experts appear in the Irish Courts they are rarely educated in Ireland.

Existing Provision for Higher Technical Education in Ireland.

The existing provision for higher technical education, within the review of the Commission, consists of (1) a professorship of engineering in each of the three Queen's Colleges; (2) such parts of the work of other professorships in the Queen's Colleges (mathematics, chemistry, physics, biology, etc.) as may be held to have a technical bearing; (3) the Royal College of Science in

* See Appendix to Second Report, p. 53. q. 4.983.

Dublin; (4) the agricultural colleges and other technical schools now in process of organisation under the new Department of Agriculture and Technical Instruction.

We are of opinion that the interests of technical education will be best served by strengthening and modifying existing institutions. . . .

Royal College of Science for Ireland.

The Royal College of Science is now under the management of the Department of Agriculture and Technical Instruction. We are informed that it is at present undergoing reorganisation, and that new buildings are to be provided. Particulars of the scheme of reorganisation will be found in Mr. Gill's evidence.* In most of its features the scheme appears to us to deserve approval. We wish, however, to add some recommendations.

(1) STATUS OF THE COLLEGE.—We consider that the Royal College should be a technical college of university rank. In the event of a university being constituted by a federation of several Colleges, including the Queen's Colleges, the university should recognise attendance on certain classes at the Royal College for purposes of graduation. The professor of any subject so recognised should by virtue of such recognition become a member of the corresponding Faculty in the university and of the General Board of Studies. University examinations in any recognised subject should be conducted within the Royal College jointly by the professor and the extern examiner, as is proposed for other Colleges.

(2) PROFESSORS.—The new duties of dignity and importance, which would thus be attached to the office of the professors, might naturally lead to a reconsideration of the degree of independence which ought to be possessed by them in relation to the Department.

(3) SCHOLARSHIPS.—We are glad to notice that the scheme includes a provision of "leaving" scholarships for selected students who have completed their course in the College. Some of these should be specifically assigned for the purpose of research, to be undertaken either in the College or elsewhere.

The Queen's Colleges.

In each of the Queen's Colleges there is a professor of engineering, but in none of them does he have a laboratory. In Queen's College, Belfast, laboratories of physics and engineering are about to be established through the generosity of the Right Hon. W. J. Pirrie. Hitherto the teaching of engineering in these Colleges has been almost wholly restricted to "civil" engineering (as distinct from mechanical, electrical and other branches), and the number of

* See Appendix to Second Report, p. 9, q. 4,065 *et seq.*

students has been small. Very few candidates have presented themselves for engineering degrees in the Royal University.

QUEEN'S COLLEGE, BELFAST.—We are of opinion that the technical side of Queen's College, Belfast, might and should be developed into a strong school of applied science, which in co-operation with the Municipal Technical School there should do for Belfast and the North what it is hoped the reorganised Royal College will do for Dublin and the rest of Ireland. Evidence has been given of a strong desire in Belfast that the highest technical education should be obtainable there, and it is felt that this may be done if the Queen's College is strengthened, and if an effective scheme of co-ordination is arranged between it and the Municipal Technical School. We are in sympathy with this view. The President of Queen's College, the Chairman of the Technical Instruction Committee of the county borough of Belfast and the Principal of the Municipal Technical Institute, as well as other witnesses, expressed themselves in favour of such co-ordination, and steps are now being taken in this direction by the Belfast Chamber of Commerce and the corporate body of the College. The details of such a scheme should be settled on the spot, and by the authorities concerned in their working. It has been suggested that a Board of Co-ordination be formed to arrange the division of work between the College and the Institute, and to prescribe the conditions to be fulfilled by students seeking technical diplomas. Such a Board should include members of the teaching body of each institution, along with persons nominated by the Corporation, the Chamber of Commerce and the Crown.

A large part of the higher technical work will fall to be carried out by the College, and for this purpose the technical side of the College must be considerably strengthened. Its engineering department requires expansion, not only by the addition of laboratory work but by the provision of lectures in electro-technics and in mechanical engineering with special reference to shipbuilding and marine-engine construction. Lecturers in these subjects should be provided, as well as a number of demonstrators and instructors in mechanical drawing and engineering laboratory work. The chemical department requires further laboratory accommodation and assistance in lectures and demonstrations. Either in the College or the Institute instruction should be given in the chemistry of dyeing. The physical department also requires one or more additional demonstrators and laboratory assistants. A lectureship in architecture might be established with advantage. Scholarships for research should be instituted. To meet these needs it ought not to be necessary, and indeed would be unreasonable, to look only to the Treasury. The

citizens of Belfast are not less likely under the altered conditions of their College to take a practical interest in it than the citizens of Manchester, Liverpool, Birmingham or Leeds take in the Colleges which have sprung up in their towns. Substantial gifts have already been made to the College, and more may be confidently looked for when it is realised that their purpose and effect will be to provide in Belfast facilities for technical education of the highest type and of the kind most closely related to local industries.

To establish two really strong schools of applied science, one in Dublin and one in Belfast, is probably as much as should for the present be aimed at, and we believe that the interests of the higher technical education will be best served by concentrating effort on these two schools.

QUEEN'S COLLEGES AT CORK AND GALWAY.—At Galway . . . good work is done in civil engineering, especially in the training of men for posts as chief or assistant county surveyors. It is remarkable that the engineering school shows more vitality in Galway than in the other Queen's Colleges. If the College in Galway is maintained, this work deserves encouragement and assistance; but we do not consider that there is occasion to develop there the teaching of other branches of engineering.

At Cork it may in time become possible to develop a school on broader lines, but for the reasons indicated we make no immediate recommendations.

HIGHER COMMERCIAL EDUCATION.

Some interesting evidence with regard to commercial education was submitted to us at our sittings in Dublin and in Belfast. This evidence, besides dealing with the subject of commercial education generally, contains a full account of the movement, recently initiated by the Belfast Chamber of Commerce, for the establishment of a school of commerce in conjunction with the Queen's College. A project of this kind necessarily raises the question of the extent to which subjects of commercial study may be regarded as within the province of a university college and as appropriate to a curriculum leading to a university degree. In dealing with this question a distinction must be made between the various types of commercial education, and this may, for the present purpose, best be done by dividing commercial education as a whole into the following three branches:—

(1) that which is concerned with the *means* whereby business is conducted—the colloquial teaching of modern languages, instruction in arithmetical calculations, and, in general, a good training in subjects approximating to commercial studies, are included under this head;

(2) that which is concerned with *business technique* and office routine;
(3) that which is concerned with the essential *science of business*—under this head is comprised a study of economics (in special relation to commerce) and of those subjects which treat of the ultimate principles on which business operations are based.

Of these branches, we are of opinion that the last mentioned alone can be regarded as suitable work for a university, and we consider that a scheme of university study might be arranged on the lines we have suggested. In arranging the details of any scheme for such a course of study, special regard should be had to the requirements of the district in which the college undertaking such work is situated.

THE CO-ORDINATION OF PRIMARY, SECONDARY AND TECHNICAL EDUCATION.

The Need of Co-ordination.

Before a university training can be available in Ireland for all who are capable of profiting by it, the several grades of education must be properly correlated. It should be possible for a child of promise to pass from the ordinary to the more advanced elementary school, and thence to a secondary school of a suitable type, after which he might proceed to some higher institution. Unfortunately, Ireland has hitherto known but little of such coherence or continuity. On this point competent witnesses are agreed. The successive levels of training have not been connected with each other by easy steps; they have rather resembled so many terraces, separated by obstacles which (so far as the poorer classes were concerned) only exceptional ability or energy could surmount. The primary system has been developed without reference to the intermediate; and as the grants made by the Intermediate Education Board have often gone to pupils who stopped short at the Junior Grade, such aid has done less than might have been hoped towards preparing students for higher forms of education.

Efforts towards Co-ordination.

Some praiseworthy efforts have, indeed, been made to mitigate this grave defect. The Christian Brothers have been the pioneers. When, in one of their elementary schools, a child of ten or twelve years shows unusual ability he is sent on to one of their higher schools, where he is prepared for the intermediate examinations, and is thus enabled to commence an upward progress. The educational authorities in Ireland are also showing that they have become fully alive to the urgent need for co-ordination. Thus the National Education Board have recently decided to establish, in selected primary schools, a supplementary course of higher primary

instruction. It is proposed that clever children of poor parents should be encouraged to take this higher course by means of small bursaries, to replace the wages which they might otherwise have earned. The next step would be to enable children, who had gone through such a higher primary training, to reach a secondary school; and it is hoped that the Intermediate Education Board may find it possible to establish county scholarships, tenable at a secondary school recognised by the Board.

The Bearing of Professional Needs on Co-ordination.

The problem of co-ordination must necessarily be viewed in relation to the professional and industrial requirements of Ireland. Among the avocations which demand technical or scientific education of the higher type may be mentioned agriculture, pisciculture, engineering (civil and electrical), the linen trade (including the flax industry) and brewing. Again, there are minor industries or crafts, several of which are little more than inchoate, that exact some artistic training, though they do not, as a rule, require technical education of the highest order. It is evidently most desirable to foster such activities, which, as the Cork Exhibition of 1902 strikingly showed, call forth gifts, sometimes of a fine quality, which are very frequently inborn, though too often latent, in the Celtic people of Ireland.

Types of Secondary Schools.

These are facts which indicate that co-ordination must be combined with elasticity. It may be added that, in a country where the capacity for education is more general than the desire, it is peculiarly needful to render educational facilities attractive by accommodating them to various natural bents. After the higher primary school, which should itself offer some option of alternative subjects, there should be a choice between secondary schools of different types. Some of these must be distinctly "modern" (as opposed to "classical"); and the "modern" curricula, again, should be various, so as to suit the divergent needs of pupils who are to be prepared for the higher technical education, or for some form of industrial or commercial pursuits. The Intermediate Education Board has already taken an important step towards such differentiation, by dividing the subjects of their programme into four principal courses, viz.—(1) the classical, (2) the modern literary, (3) the mathematical and (4) the experimental. According as a secondary school devotes itself chiefly to one or another of these courses, the curriculum will tend to fix the type; and, by a definite though not rigid or illiberal specialisation, each school will become more efficient in its chosen field.

Leaving Certificates.

With regard to the relation of secondary schools to the University, it would be a gain if some system of "leaving certificates" could be introduced, by which a student so accredited might become exempt from the initial examinations of the University. Such "leaving certificates" may help to meet a difficulty which has been brought before our notice. Under existing regulations students of medicine and of applied science are obliged to take a year's course in arts. It has been urged that the University should dispense with this requirement, which places students of the Royal University at a disadvantage compared with those of other universities in the United Kingdom. Candidates for these degrees should, it is maintained, be free, after passing a Matriculation examination to devote themselves to their scientific studies during the whole of their university career. We recognise the force of this contention, but can only give a qualified approval to the change proposed. We would suggest that exemption from a year's course in arts should be granted only if the standard of the Matriculation is considerably raised, or if the candidates shall have passed that, or a similar, examination on a standard higher than that of the bare pass. The institution of a well-considered system of "leaving certificates" may be of the highest service in carrying out the purpose here referred to. It is also desirable that the academic bodies should in certain cases co-ordinate their work with that of neighbouring institutions which give technical or scientific instruction of the higher kind.

The Department of Agriculture and Technical Instruction.

A circumstance very favourable to co-ordination in Ireland is the harmony of purpose which exists between the Intermediate Education Board and the Department of Agriculture and Technical Instruction. That Department, which administers technical education and takes part in examining the schools of the Intermediate Education Board, has been wisely mindful of its own relation to the general education of the country in every grade.* The Department encourages Local Authorities to offer scholarships leading from secondary schools to higher institutions, and generally seeks to promote continuity of training. It is, however, to be remembered that the system of divided educational control which obtains in Ireland does not in itself afford any guarantee for the permanence of such valuable co-operation.

* See Appendix to First Report, p. 2, q. 3,944.

FIGURE 1.



FIGURE 2.



THE TEACHING OF EXPERIMENTAL SCIENCE FOR MINING STUDENTS IN
STAFFORDSHIRE (INSTRUCTION ROOM, FREE LIBRARY BUILDINGS
STOKE-ON-TRENT). (See page 336).

V.—A COURSE OF EXPERIMENTAL SCIENCE FOR MINING STUDENTS.

By W. A. LETHBRIDGE, B.A., INSTRUCTOR IN EXPERIMENTAL SCIENCE TO THE STAFFORDSHIRE EDUCATION COMMITTEE.

DESCRIPTION OF PRELIMINARY PROCEDURE.

The course of work now to be described was carried out with about ten mining students during September to April, 1902-3. The students included a mining manager, three under-managers, a fireman and some colliers, so that the class was a fairly representative one. The South Kensington elementary chemistry classes had not apparently provided sufficient inducements for ensuring good attendance. Such classes contain pottery students, teachers, etc., and special attention cannot, therefore, be paid to points which particularly appeal to the miner. It was hoped that the community of interest attached to a class for miners only would be an additional incentive to attendance.

In drawing up a syllabus of work it had to be borne in mind that the great object of the students who would attend was to secure "their first or second-class ticket," *i.e.*, manager's or under-manager's certificate. The course had, therefore, to include information bearing directly on mining. As most of the students would probably have received little, if any, scientific training, it seemed eminently desirable that the work to be done should not merely supply useful knowledge, since keen powers of observation, with ability to reason correctly from observed facts, are, to the practical man at least, an equally valuable mental equipment. The work was accordingly made entirely practical, the experiments being carried out by the students themselves with some definite object in view, to be attained from their own researches. In no case was the class told the results beforehand, only just sufficient guidance being afforded to enable all to do what was required in order to obtain the information for themselves.

The meetings were held in a room in the basement of the Free Library buildings at Stoke-on-Trent, the area reserved for science measuring 28 ft. 5 in. by 38 ft. 4 in. The light from the windows was poor, but this was of no account for evening classes held during the winter months. The fittings were designedly of the simplest character. A sink, 1 ft. 6 in. by 2 ft., was fitted up in one

corner of the room. The experimental work was performed at plain wood tables, measuring 2 ft. 8 in. by 6 ft. 1 in., their height being 2 ft. 6 in.; while the gas supply was laid along the wall at a suitable height (See Fig. I., p. 334). By keeping to plain arrangements of this kind, much of which might be found at a colliery, it was hoped that the men might be encouraged to work subsequently on their own account. Another part of the reserved space was provided with desks at which notes could be written out during the discussions and results of experiments entered. These desks were about 2 ft. broad, 7 ft. 6 in. long and 2 ft. 6 in. high. They were also used for the balances (See Fig. II., p. 334). The forms were suitable for use both at the desks and the tables, being 1 ft. 6 in. high and 7 ft. 6 in. long by 8½ in. broad, a point not unimportant when men have been engaged in severe physical toil throughout the day.

For some few lessons a short lecture and, perhaps, a demonstration were given at the commencement of the evening's work; but as experiments, carried out on research lines, cannot be adapted to hard-and-fast routine, it was decided, later on, to have a talk over the results whenever necessary, and, in order to encourage discussion, formality was abandoned by the teacher sitting down with the class at what was somewhat of a round-table conference.

Then there would be a call for results; their trustworthiness was discussed; possible causes of error were pointed out for the benefit of those whose results seemed apparently to be wrong; questions were asked both by the teacher and the class until the matter in hand had been well thrashed out. Finally, an attempt was made to elicit, from all and sundry, the story that was read by them from what had been done, together with any suggestions for future work.

Stress was constantly laid on the accurate observance and interpretation of facts, and, where possible, the value of this was brought to bear on the students' everyday work. The informal method was at once successful in giving the men confidence about stating their difficulties and arguments for or against any conclusions which had been given.

SOME INCIDENTS OF THE TEACHING.

Sometimes the conclusions were rather surprising. For example, on heating coal very strongly in a crucible it was all burnt away with the exception of some ash. One man thought this ash might be nitrogen, having gathered from some source or another that nitrogen was indestructible. Certain of the students had already

attended science courses, and in their case the experiments did not always supply material for reasoning; but with others it was vastly different, for the results would sometimes clash with ideas held for years. One evening's work was particularly interesting in this respect. The object of the experiment was to find out what happened to iron when heated strongly in air. After their final weighings, two men looked downcast. On inquiry, it was found that their iron had increased in weight, and, they were bound to admit, had therefore "picked up something." Later on the cause of their disturbed looks reached me through the mining instructor to whom one, a collier, had unbosomed himself. "These experiments," he said, "why they knock over all your notions! "If you burn a stick, it doesn't get heavier." Later on, the same student said, "I am yearning to do some work at home." It is satisfactory to report that most of the students asked that some simple apparatus might be procured for them, towards the close of the session.

The results of experiments performed at the class were afterwards brought to bear on mining. To quote an example, the determination of the amount of ash in coal, brought by each from his own pit, raised friendly rivalry as to the merits of the respective samples, especially in the case of those with the lowest percentage of ash. The results were borne in mind, for on a visit to a certain colliery the manager received so many inquiries that he wished to know why the men were so keen on ash!

THE SYLLABUS OF THE COURSE.

Appended is the syllabus of the work, although it must be mentioned that the class did not get beyond the blowpipe tests. Next year it is intended to make blowpipe analysis a separate course, following the one just described, for the benefit of such students as are desirous, after the first year's work, of becoming moderately expert in the analysis of minerals, etc., with a view to prospecting.

Measurement of Volume.

SOLIDS.—The volumes of solids of regular shape, *e.g.*, cubes, cylinders, etc., to be found by means of calipers, beam compass and screw gauge, thus involving the use of the Vernier. The principle of this should be explained and each student should make a simple one for himself in paper, cardboard, etc., to read to one-tenth of an inch. Solids of irregular shape, like a lump of coal, to have their volumes measured by displacement of water.

LIQUIDS.—These should be dealt with next. Water (tap water and pit waters) to be measured out into beakers or flasks, using burettes and pipettes. These known volumes to be weighed, as exercises in the use of the balance, and the results giving different weights for equal volumes would prepare for the idea of relative density (specific gravity).

The volume of gases, air, coal-gas, etc., in a jar or bottle, to be found by transferring to a graduated tube over water, the level of the water being the same inside as out. The effects of pressure and temperature should be dealt with by the class, or, if not sufficient time, by a demonstration.

Relative Density.

Pieces of coal to be weighed in air and in water. Take pieces of different sizes and find the absolute and proportional loss. The above experiments might be repeated, using different kinds of coal. Thus, the relative densities can be found, and all the results should be plotted out on squared paper. The weight of water, displaced by the samples of coal taken, should be found, and the principle of Archimedes proved from the results. The relative densities of liquids could next be dealt with, using various samples of pit waters. At this point a discussion might be introduced as to why the results differ, the work forming an introduction to that later on dealing with boiler scale. The densities of powders, *e.g.*, "mine" dust to be discovered, making use of previous knowledge.

Expansion of Gases.

The co-efficient of expansion of air and gases slightly soluble in water to be found by heating a flask of the gas in boiling water, closing the mouth, and then opening under water. From the volume of water rushing in on cooling the co-efficient could be calculated. The thermometer used for measuring the temperature would afford an example of the expansion of a liquid on heating. Centigrade and Fahrenheit scales to be mentioned and the method of converting one to the other. A study of the gases oxygen, nitrogen, choke-damp, oxidation. A series of experiments should be performed whereby it would be shown that iron on rusting, or when heated, gains in weight at the expense of the air. Air is found to consist of about one-fifth vital air (so-called because it supports life and light, the principal tests of the miner), and four-fifths ayote, the vital air being removed in either case, as the gas left extinguished a flame. Other metals, *e.g.*, copper, lead, zinc, magnesium, might be heated and found to gain in weight, forming ashes or calxes. The calcining of raw ironstone to be

discussed at this stage; the effect of heat on the wire gauge of Davy lamps; combination with vital air, as seen in tempering steel. Other substances to be then heated in air or oxygen. Coal should be so treated and a new gas discovered whose properties resemble that of choke-damp. Its production by the burning of the Davy lamp and breathing should be proved by suitable experiments. The burning of magnesium in choke-damp having shown the latter to contain carbon and oxygen and litmus proved it to be acid; hence, name carbonic acid gas. Sulphur and phosphorous to be burnt in air and the products examined; hence, reason for the name "oxygen." Possible sources from which to obtain free oxygen to be next discussed. Preparation and properties. Synthesis of air from which "vital air" has been removed by rusting iron affords proof that the same gas has been really obtained.

The nature of flame to be dealt with and the terms "combustible body" and "supporter of combustion" explained, and their reversibility demonstrated by showing air burning in coal gas. The effect of heat on coal being known, the method of taking samples from the bulk should be explained. A small amount of coal could be powdered, dried in an oven and the percentage of moisture found (calculations to be done by logarithms); then strongly heated to drive volatile constituents and the percentage of these and the ash found.

Oxidation. The use of the Blowpipe. Reduction.

In the course of the previous work it would have been discovered that some metals changed very little in the Bunsen flame. The reasons for this to be discussed and the blacksmith's forge mentioned as hotter than an ordinary fire, an explanation of this being afforded, if possible, by the class. The blowpipe could then be used to heat, say, lead—the results to be noted and tested by the balance. The inner and outer cones of the blowpipe flame having been observed, their nature and use to be explained, and tests given for the following as being, perhaps, the most important to miners—iron, lead, zinc, copper, tin, silver, tungsten, arsenical pyrites and, if possible, gold.

Boiler Scale.

Examine the sample of pit waters whose relative densities had previously been found, filtering to remove suspended impurities. Then evaporate, and find if any solid deposited. If so, perform experiment quantitatively, and discuss results as bearing on the amount of boiler scale likely to be found.

Then the question arises as to how the scale first got into the water, and this should be considered. The action of boiler "doctors" in preventing the formation of scale might be introduced. Sometimes pit waters act on boiler plates. Procure, if possible, samples of such waters and test with litmus. The amount of alkali to be added depends on the amount of acid present. Alkali of a certain strength to be run into known volumes of the above waters.

CONCLUSION.

In carrying out the work briefly outlined in the above syllabus, there was a minimum of lecturing and demonstration. Great stress was laid on the entering up of results in suitable note-books and, wherever possible, the results were represented on squared paper. The number of students in a class of this kind should not exceed twelve for one teacher, in order to ensure effective teaching. It was found very undesirable to hurry the men with their experiments, as some were likely to get muddled, especially over work dealt with in the latter portion of the syllabus. Very little extra trouble was involved if the students were not all doing the same work simultaneously, in a class of the size named; and, as far as possible, they were encouraged to repeat their experiments until confidence and accuracy in manipulation were acquired.

The conclusions drawn from the results of a session's work with the kind of technical student dealt with in the above course, viz., the working man anxious to advance himself, have seemed to indicate that, in the preliminary stages at any rate, a knowledge of physics and chemistry sufficient for his needs can with advantage be imparted by the heuristic method.

The writer wishes to express his indebtedness to Mr. T. T. Stobbs, the County Mining Instructor of North Staffordshire, for much useful advice and information.

W. A. LETHBRIDGE.



THE GROUP FOR CARPENTRY AND JOINERY.

PRELIMINARY LIST OF APPOINTMENTS UNDER
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* See remarks in the Editorial Notes on pp. 273-4.

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Secretary for Elementary Education: Mr. F. T.
Spackman, Elementary Education Offices,
Hound's Lane.

VII.—THE EDUCATION (LONDON) ACT, 1903.

TEXT OF THE MEASURE.

An Act to extend and adapt the Education Act, 1902, to London.

[14th August, 1903.]

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

Application of Education Act, 1902, to London.

1. The Education Act, 1902 (in this Act referred to as the principal Act), shall, so far as applicable, and subject to the provisions of this Act, apply to London.

Provisions as to Management and Sites of Provided Schools.

2.—(1) Every public elementary school provided by the Local Education Authority within the area of any metropolitan borough shall have a body of managers. The number of those managers and the manner in which schools, in cases where it is desirable, should be grouped under one body of managers shall be determined by the Council of each borough, after consultation with the Local Education Authority, and subject to the approval of the Board of Education.

Two-thirds of every such body shall be appointed by the Borough Council and one-third by the Local Education Authority; due regard shall be had in selecting managers to the inclusion of women in the proportion of not less than one-third of the whole body of managers, and, in the case of the first body of managers, also of members chosen from the then existing bodies of managers and the Borough Council and the Local Education Authority shall carry out any directions given by the Board of Education for the purpose of giving effect to this provision.

(2) The site of any new public elementary school to be provided by the Local Education Authority shall not be determined until after consultation with the Council of the metropolitan borough in which the proposed site is situated, and in the case of compulsory purchase, if the Council of the metropolitan borough does not concur in the proposed compulsory acquisition, the Board of Education



THE TECHNICAL SCHOOL, WELLINGTON, NEW ZEALAND (PLUMBERS' WORKSHOP). (See page 376.)

shall not make the Order authorising the purchase unless they are satisfied that the concurrence of the Council of the borough should be dispensed with: provided that, except in the case of compulsory acquisition, the site required for the enlargement of a public elementary school shall not be deemed to be a site required for a new public elementary school within the meaning of this sub-section.

(3) Schools provided by the Local Education Authority for blind, deaf, epileptic, and defective children, and any other schools which, in the opinion of the Board of Education, are not of a local character, shall not be treated for the purposes of this Section as public elementary schools.

Boundary Schools.

3.—(1) As from the passing of this Act, any public elementary school provided by the London School Board before the passing of this Act, which is wholly or partly situated outside the county of London, shall, for the purposes of this Act, be treated as, and for the purposes of the principal Act be deemed to have been, wholly situated within the county of London and within the nearest metropolitan borough.

(2) Any public elementary school provided by the Local Education Authority which is situated partly in one metropolitan borough and partly in another, shall, for the purposes of this Act, be deemed to be situated in such one of those boroughs as the Local Education Authority determine.

Modification of Principal Act and Interpretation.

4.—(1) The modifications of the principal Act set out in the First Schedule to this Act shall have effect for the purposes of this Act.

(2) The expression "metropolitan borough" in this Act shall include the City, and the expression "Council of a metropolitan borough" shall include the Mayor, Aldermen, and Commons of the City of London in Common Council assembled.

Commencement, Repeal, and Short Title.

5.—(1) This Act shall, except as expressly provided, come into operation on the appointed day, and the appointed day shall be the 1st day of May, 1904, or such other day, not being more than twelve months later, as the Board of Education may appoint, and different days may be appointed for different purposes and for different provisions of this Act.

(2) In addition to the repeals effected by the principal Act, the Acts mentioned in the Second Schedule to this Act shall be repealed to the extent specified in the third column of that Schedule.

(3) This Act may be cited as the Education (London) Act, 1903; and the Education Acts, 1870 to 1902, and this Act may be cited as the Education Acts, 1870 to 1903.

SCHEDULES.

FIRST SCHEDULE.

Modifications of the Principal Act.

(1) References in the principal Act to the Council of a borough shall not be construed as references to the Council of a metropolitan borough, except—

(a) in paragraph (a) of Section 20 (relating to arrangements between Councils) and in sub-section two of Section 24 (relating to interpretation); and

(b) as respects the borough of Woolwich, so far as is necessary to enable the Council of that borough to make any contribution which they are authorised to make under Section 19 of the London Government Act, 1899.

(2) The provisions of Section two of the principal Act, as to limit of rate, shall not apply.

(3) Sub-section one of Section six of the principal Act (relating to the management of schools), and so much of Section twelve of that Act (relating to the grouping of schools under one management) as relates to public elementary schools provided by the Local Education Authority, shall not apply.

(4) The provisoes to sub-section one of Section 18 of the principal Act (relating to expenses), and sub-section two of Section 13 of that Act (relating to endowments), shall not apply, but the Board of Education may, on the application of the Trustees of the endowment, or of the Local Education Authority, direct that any money which would be payable under the said Section 13 to the County Council shall be applied in manner provided by a scheme made by the Board if the Board consider that it is expedient to make such a scheme. In any such scheme, due regard shall primarily be had to the interests of the locality for which the benefits of the endowment were intended.

(5) The words "a County Council" in Section 19 of the principal Act (which relates to borrowing) shall, as respects borrowing by the Local Education Authority, be construed as if they were "the London County Council."

(6) Section 27 of the principal Act (relating to Extent, Commencement, and Short Title) shall not apply except so far as sub-section three of that Section is already applicable to London, and the words "the appointed day" shall be substituted for "the 26th day of March, 1904," in that sub-section.

(7) Where the London County Council delegate to their Education Committee any powers, and the acts and proceedings of the Committee as respects the exercise of those powers are not required to be submitted to the Council for their approval, sub-section one of Section 233 of the Municipal Corporations Act, 1882 (which provides for the inspection and the taking of copies of minutes) shall apply to the minutes of the Committee relating to the exercise of those powers as it applies to the minutes of the Council.

(8) The Treasury shall be substituted for the Local Government Board in paragraph six of the Second Schedule to the principal Act.

(9) Where governors or managers are appointed by the Local Education Authority on the Governing Body of any institution aided by grant from the Local Education Authority, the provisions of the scheme or Trust Deed of the institution imposing any limit on the number of the members of the Governing Body, or requiring any qualification for those members, shall not apply as respects such governors or managers.

(10) References in the principal Act to the passing of that Act shall be construed as references to the passing of this Act.

(11) A manager of a public elementary school provided by the Local Education Authority shall not be appointed for a longer period than three years, but may be re-appointed.

SECOND SCHEDULE.

Enactments Repealed.

Session and Chapter.	Short Title.	Extent of Repeal.
33 and 34 Vict. c. 75.	The Elementary Education Act, 1870.	The definition of "metropolis" in Section three. Sections 37, 38 and 39. Section 58. The Third Part of the Second Schedule, and the Fifth Schedule.
16 and 37 Vict. c. 86.	The Elementary Education Act, 1873.	Section 16.
8 and 49 Vict. c. 38.	The School Boards Act, 1885.	Section two.

VIII.—MISCELLANEA.

THE PROPOSED TECHNICAL HIGH SCHOOL FOR LONDON.*

THE ATTITUDE OF THE LONDON COUNTY COUNCIL.

1. We have carefully considered the important proposal contained in Lord Rosebery's letter to the Chairman of the Council for the provision in London of further opportunities for advanced technological teaching and research. In this connection, a joint sub-committee which we appointed for the advantage of conferring with the Right Hon. R. B. Haldane, one of the proposed trustees, from whom further particulars have been gathered of what is proposed.

Briefly put, the offer conveyed by Lord Rosebery amounts to this—that land, buildings and equipment required for advanced technological teaching and research, to the value of £500,000, will be at once provided, and steps will be taken to secure other funds for both capital outlay and maintenance, provided that the Council will express, in general terms, its willingness to contribute towards the buildings are equipped and ready to be opened, a sum of £20,000 a year towards the maintenance of the educational work.

We do not need to enlarge upon the great importance to technical education and to London of Lord Rosebery's communication. The proposed donation would be the largest capital gift yet made for educational purposes in London, and the Council will not fail to express its high appreciation of the munificence and public spirit of those who have associated themselves in this proposal.

In view of the magnitude of the projected undertaking, we have, however, thought it necessary to consider the matter very carefully both in its relation to the Council's finances and in its bearing on the organisation and development of education in London.

We may say at once that there can be no doubt of the need for what Lord Rosebery proposes, or of its high educational value. The projected new departments would put, as it were, the emphasis upon the systematic organisation of technical education which

* Special Report of the Joint Committee of the General Purposes Committee and the Technical Education Board of the London County Council : adopted by the London County Council at its meeting held on the 21st July, 1903.



THE TECHNICAL SCHOOL, WELLINGTON, NEW ZEALAND (TECHNICAL LIBRARY). (See page 380.)

Council has, for the past ten years, been carrying out. We may remind the Council that the Technical Education Board, in the report of its Special Committee on the application of science to industry, to which Lord Rosebery refers, pointed out to the Council that it was "unable to resist the conclusion that various branches of industry have, during the past 20 or 30 years, been lost to this country owing to the competition of foreign countries; that in many others our manufacturers have fallen seriously behind their foreign rivals; that London, in particular, has distinctly suffered; and that these losses are to be attributed in no small degree to the superior scientific education provided in foreign countries."

The Special Committee reported "that the greatest need of London at the present time is the co-ordination of the provision for the highest grades of education, and the development of new departments, so that professors of the highest distinction and practical training should have under their supervision post-graduate or other advanced students, carrying out research work in such subjects as the various branches of chemical technology, electro-chemistry, optics, the different applications of electricity to industry, railway engineering, hydraulics, naval architecture and marine engineering. These new departments, in whatever way they may be organised, and whether attached to one or other of the existing institutions, would require adequate buildings and equipment."

The report concluded with the following significant words: "We feel that the expenditure required to put London in a position to equip itself as well as, say, Berlin, is altogether beyond the range of the sums with which the County Council has entrusted the Technical Education Board, and even beyond the amount which it could legally spend on technical education. Part of what is wanted, namely, the endowment of research, as such is, moreover, possibly outside the scope of the Technical Instruction Acts. The matter appears to us to be one of national concern. In the United States such institutions are founded by private munificence. We can do no more than report the need, with all the emphasis that we can give to the words, in the hope that, either out of private or public funds, something may be done."

The Council instructed the Board on 22nd July, 1902 to report what steps it proposed to take to give practical effect to the suggestions contained in the report. In view of the heavy capital outlay required, the Board has not seen its way to bring any recommendation before the Council. That difficulty is

removed by the present offer. It is, we think, a legitimate source of satisfaction to the Council that the valuable report of its Technical Education Board should have evoked so munificent a response.

The details of Lord Rosebery's proposal have not yet been elaborated, but we learn that what is projected follows closely the lines laid down in the report above referred to; and that the trustees hope to have the aid of the Council's educational experience in working out their plans. We have ascertained, in particular, that there is no intention of overlapping or duplicating any part of the educational provision already existing in London, whether at the various polytechnics or at such institutions as the Central Technical College, the University College or the Royal College of Science. The references made to the great Technical High School at Charlottenburg, near Berlin, have been intended to illustrate how costly and extensive is the provision made in Germany for advanced technological teaching, rather than as a proposal to establish in London any exact copy of that institution, which includes in its vast scope much work that is already being efficiently done in London. We are assured that it is intended to confine the new buildings and equipment to branches of technology as yet unprovided for in London, or provided for only on a quite inadequate scale, and that in all the arrangements the importance of co-ordinating all the higher educational work in London, in close connection with the University, will be a fundamental consideration.

With regard to the site of four acres which Lord Rosebery has reason to think can be obtained for this purpose free of cost, we understand that the proposal is as follows. There already exist at South Kensington, in close contiguity to the central building of the University, not only the Natural History Museum, with its valuable science collections, but also the extensive premises of the Royal College of Science, maintained at a cost of over £24,000 a year from national funds, and those of the Central Technical College, maintained as an engineering school of first-class rank at a somewhat similar expense by the City and Guilds of London Institute. In addition, the Government has actually in course of erection a great range of new physical and chemical laboratories which will cost £185,000; and it is understood that the Royal School of Mines, destined to be the nucleus of a much more extensive department of mining and metallurgy, will also be concentrated in close contiguity with these institutions. Interspersed between these buildings are four acres of vacant land, belonging to the Royal Commissioners for the 1851

Exhibition, on which could be erected suitable laboratories and lecture-rooms for those departments of technology which have yet to be provided for. When these have been built and equipped, the greater part of the vast quadrangle from the Cromwell Road to the Albert Hall will be devoted to scientific and technological education and research. Worked as the several departments should be, in close alliance and co-ordination with each other, with the University, and with the other advanced work in science and engineering carried on at University and King's Colleges and elsewhere in London, we consider that Lord Rosebery is justified in thinking that the present proposal would go far to place London in a position, with regard to science and technology, equal to that of any other city.

We have been unable, at the present stage, to obtain definite particulars, or to form any exact estimate, of the gross annual expenditure which the proposed new departments would involve. There can be no doubt, however, that even after making a large allowance for fees, the net expenditure will greatly exceed £20,000, the sum which the Council is invited to contribute. The trustees have apparently hopes of obtaining contributions towards maintenance from private donors, both in annual subscriptions and in permanent endowment. Moreover, they confidently expect that, if the Council gives the scheme its support, they will be able to obtain substantial assistance from His Majesty's Government towards the annual maintenance of what will, in part, be an institution of national importance.

We regard this national contribution as an essential condition of the scheme. The work proposed to be done is, to a large extent, of national utility, and we do not think that the Council should lend any encouragement to the idea that the whole of the cost of maintenance can be provided from London sources. In no case could the Council be advised to make itself responsible for the whole finances of the proposed new departments. Any aid which it could give would have to be clearly limited to a definite annual grant, leaving any deficit to be met from other sources.

We have, moreover, to remind the Council that although the annual grants of the Council for technical education still fall short of its receipts under the Local Taxation (Customs and Excise) Act, 1890, the surplus annually remaining under this head is diminishing. The annual expenditure for the maintenance of the Council's various institutes and its maintenance grants to the polytechnics, etc., may, of course, be expected to increase with the normal growth of this educational work. On the other hand, the annual expenditure includes, at present, large sums for new buildings and the initial equipment of new institutions (amounting,

in 1902-3, to £36,000) which will not recur, and similar items could, in future, properly be charged, in part at least, to capital account. There is, accordingly, still some margin. If the proposed grant of £20,000 had to be made within the present or the next ensuing years, it could be made without exceeding the receipts from the Exchequer contribution at the Council's disposal for such a purpose. It is, however, probable that no payment would actually be called for from the Council for at least two or three years; and it is difficult to form any forecast of the increase of Exchequer contribution or other new Government grants that may then be available for the Council's educational work.

At the present stage of the negotiations we do not think that the Council would do wisely to commit itself to any definite undertaking to contribute. Besides obtaining assurances of adequate income from national funds and other sources, other than its own grant, the Council should, we think, have an opportunity of considering the constitution and powers of the Governing Body which it is proposed to establish, and especially the Council's representation thereon; the arrangements for the organisation of the new departments, and particularly the subjects to be dealt with; and the system of scholarships and free places by which the advantages of these new departments may be made accessible to London students of all classes. This last point we regard as of cardinal importance.

We are, however, informed that, in order to secure the large donations already conditionally promised, and to enable Lord Rosebery and those associated with him to put definite proposals before His Majesty's Government, the Commissioners of the 1851 Exhibition and other authorities concerned—as well as to pursue negotiations with other possible contributors—it is necessary that the Council should, before the recess, give some answer to Lord Rosebery's letter. We think that, whilst the Council will wish to express its high appreciation of the value and importance of Lord Rosebery's proposal, it should not do more, at the present juncture, than offer a conditional support. We recommend—

(a) That the Council expresses its high appreciation of the important proposal contained in Lord Rosebery's letter, and would cordially welcome the establishment of further provision in London for advanced technological teaching and research.

(b) That the Council, in response to the request contained in Lord Rosebery's letter, places on record its opinion that, when the land, buildings and equipment for the proposed additional technological teaching and research are provided to a value of not less than £500,000, the Council will be well advised to contribute, out of the moneys annually placed at its disposal under the Local Taxation (Customs and Excise) Act of 1890, a sum not exceeding

£20,000 per annum, towards such part of the work as falls within the statutory definition of technical education, subject to the following conditions—

(i.) That a scheme be prepared to the satisfaction of the Council, for the constitution of the Governing Body, and the adequate representation of the Council thereon.

(ii.) That financial arrangements, adequate to the whole maintenance of the proposed work, are made to the satisfaction of the Council.

(iii.) That, in view of the national scope and utility of the proposed work, substantial contributions towards maintenance be made from funds of a national character.

(iv.) That due provision be made in the scheme to prevent overlapping and secure co-ordination of the work already carried on by the university colleges, polytechnics and other science and technological institutions; and the proper connection of the whole with the University.

(v.) That a sufficient number of scholarships, including free places, be placed at the disposal of the Council.

(vi.) That it be considered whether other counties and boroughs should not be invited to contribute towards the maintenance, receiving in return the right to send their picked scholars for instruction under the proposed scheme.

15th July, 1903.

THE REVISED REGULATIONS FOR THE REGISTRATION OF TEACHERS.*

Whereas by virtue of Section four of the Board of Education Act, 1899, it is lawful by Order in Council to establish a Consultative Committee for the purpose of framing, with the approval of the Board of Education, regulations for a Register of Teachers, which is to be formed and kept in manner to be provided by Order in Council :

And whereas a Consultative Committee has been established by Order in Council ; and the Committee so established have, with

* The modifications made to the original Regulations established by the Schedule to the Order in Council of 6th March, 1902, and approved by the Board of Education, are printed in italics (see remarks in the Editorial Notes on p. 276).

the approval of the Board of Education, framed the regulations for a Register of Teachers set forth in the Schedule to this Order.

Now, therefore, His Majesty, by and with the advice of His Privy Council, and by virtue of the authority committed to Him by the Board of Education Act, 1899, and of all other powers enabling Him in that behalf, is pleased to order and it is hereby ordered as follows :—

1.—For the purpose of forming and keeping such Register of Teachers, there shall be established a registration authority, called the Teachers' Registration Council,† and in this Order referred to as the Council, which shall consist provisionally of twelve members, of whom six shall be appointed by the President of the Board of Education, and of the remaining six one member shall be appointed by each of the following bodies :—

The Conference of Head Masters ;

The Incorporated Association of Head Masters ;

The Association of Head Mistresses ;

The College of Preceptors ;

The Teachers' Guild of Great Britain and Ireland ;

The National Union of Teachers.

2.—The members so appointed shall hold office for three years from the date of this Order.

3.—On a casual vacancy occurring in the Council during the said period of three years, the authority by whom the member whose seat is vacated was appointed shall appoint another member in his place.

4.—The first appointments of members of the Council shall be made not later than the first day of April one thousand nine hundred and two, and each appointing authority shall, as soon as may be after making the appointment, communicate to the Board of Education the name and address of the person appointed by them.

5.—The first meeting of the Council shall be convened by the Board of Education, and that Board may take such steps as they think necessary for the purpose.

6.—After the expiration of three years from the date of this Order, the constitution of the Council shall be such as may hereafter be provided by Order in Council.

7.—If any member of the Council is adjudged bankrupt or makes a composition or arrangement with his creditors, or is absent from meetings of the Council for more than twelve months consecutively,

† The names of the persons who now constitute the Council are Dr. R. P. Scott (Chairman), Mr. A. E. Pollard, Mrs. Woodhouse, Mr. E. E. Pinches, Mr. F. Storr, Mr. E. Sharples, Mr. J. F. Hope, M.P., Rev. Dr. W. A. Fearon, Professor R. Meldola, Rev. D. J. Waller, Mr. J. L. Holland and Miss A. I. Wallas ; with Mr. G. W. Rundall (Registrar) and Mrs. Withiel (Assistant Registrar).

except in case of illness, or for some reason approved by the Council, his office shall become vacant.

8.—The Council may appoint committees and delegate, with or without conditions or restrictions, any of their powers and duties to any committee so appointed, and may regulate the procedure and conduct of business of the Council and of any committee so appointed.

9.—No act or proceeding of the Council or of a committee of the Council shall be questioned on account of any vacancy in their body.

10.—The Council shall establish and keep a Register of Teachers in accordance with the regulations contained in the Schedule to this Order, as framed by the Consultative Committee and approved by the Board of Education, and with such other regulations as may from time to time be framed and approved in like manner.

11.—Subject to the approval of the Board of Education, the Council may provide an office and appoint a registrar, and appoint or employ such other officers and persons as may be required for the execution of their duties, and may assign to any person so appointed or employed such remuneration as may be approved by the Board.

12.—All fees payable in respect of registration and matters incidental thereto, as fixed by or under the said regulations, shall be carried to a registration fund, and the expenses of the Council shall be paid out of such fund.

13.—There may be paid to the members of the Council out of the registration fund such fees for attendance at meetings and such allowance for travelling expenses as may be approved by the Board of Education.

14.—The accounts of the Council shall be audited and published by or under the direction of the Board of Education.

15.—The Council shall make a report of their proceedings once a year to the Board of Education.

THE SCHEDULE.

REGULATIONS FOR THE FORMATION OF A REGISTER OF TEACHERS.

1.—As soon as may be after the establishment of the registration authority there shall be established a Register of Teachers *which may be cited for all purposes as "the Teachers' Register"** (hereinafter called "the Register") in which the name of every registered teacher shall be set forth in alphabetical order.

In addition to this alphabetical list there shall be two columns distinguished as Column A and Column B.

* Framed by the Consultative Committee on the 18th June, 1903.

Column A shall contain the names of all persons for the time being recognised by the Board as certificated teachers under the Code of Regulations for Elementary Day Schools.

Column B shall contain the names of all persons who fulfil the conditions of registration herein-after set forth.

There shall also be recorded in the Register in respect of each teacher, when registered therein, his postal address, the date of his registration and a brief statement of his qualifications and teaching experience, in the following form :—

Alphabetical List.	Column A.	Column B.	Address.	Date of Registration.	Qualifications.	Experience.

Additional qualifications and experience may be added from time to time, when verified by the registration authority.

2.—A person shall be entitled to be placed on Column B of the Register of Teachers if he satisfies the registration authority that he fulfils the conditions set forth in regulation three; or if he applies at any time within three years from the establishment of the registration authority to be placed on the Column B of the Register, and satisfies the registration authority that he fulfils the conditions set forth in regulation four.

3.—A person shall be entitled to be placed on Column B of the Register if he fulfils the following conditions :—

- (1) He must have obtained a degree conferred by some university of the United Kingdom, or have obtained one of the diplomas or certificates mentioned in Appendix A to these Regulations, or have attained some other approved standard of general education.
- (2) He must either—
 - (i.) have resided and undergone a course of training (a) for at least one year, or (b) *for periods amounting altogether to not less than one year under circumstances which, in the opinion of the registration authority, render the periods equivalent to a continuous year,** or (c) *in the case of a student who has taken honours in a final examination for a degree after spending four academic years at some university in the United Kingdom have undergone a course of training for two terms at least taken*

* This modification italicized as (b) was framed by the Consultative Committee on the 18th June, 1903.

continuously,* at one of the universities or training colleges mentioned in Appendix D to these regulations or some other recognised institution for the training of secondary teachers, and have passed the examination for one of the diplomas or certificates in the theory and practice of teaching mentioned in Appendix C to these regulations; or

(ii.) have passed an approved examination in the theory of teaching, have spent at least one year as a student teacher under supervision at a recognised school (not being an elementary school), and have produced evidence of ability to teach.

(3) He must have spent at least one year of probation as a teacher at a recognised school (not being an elementary school) and must satisfy the registration authority that he has shown fitness for the teaching profession.

4. A person shall be entitled to be placed on Column B of the Register if at any time within *four** years from the establishment of the registration authority he makes application to be so placed and fulfils the following conditions:—

(1) He must have obtained a degree conferred by some university of the United Kingdom, or must show to the satisfaction of the registration authority that he has obtained one of the diplomas or certificates, or has passed one of the examinations mentioned in Appendices A and B to these Regulations, or has attained some other approved standard of general education; and

(2) He must either—

(i.) have been engaged as a teacher at a recognised school or schools (not being an elementary school or schools), *(a) throughout the three years next preceding his application, or (b) for periods amounting altogether to not less than three years under circumstances which, in the opinion of the registration authority, render the periods equivalent to a period of three years next preceding his application.*†

(ii.) have passed the examination for one of the diplomas or certificates in the theory and practice of teaching mentioned in Appendix C to these Regulations, and produce evidence satisfactory to the registration authority of experience in teaching (other than the teaching in an elementary school or teaching of a purely elementary character) extending over a period of not less than three years:

Provided that a headmaster or headmistress of a recognised school, not being an elementary school, shall be entitled on

* These words are inserted by an Order in Council dated 11th August, 1902.

† Framed by the Consultative Committee on the 18th June, 1903.

application to be placed on Column B of the Register without fulfilling the above conditions, if the applicant has held the office for at least one year previous to the date of his application.

5.—(1) The registration authority may place on Column B of the Register the name of any person who does not fulfil all the conditions of registration, but who, in their opinion, would have fulfilled all the necessary conditions but for the fact—

(a) that part of the period of his study or training was spent in an approved course of study or training at a foreign university, college or school, or

(b) that part of the period of his study, training or probation was spent in original research certified to have been conducted under proper supervision and to the satisfaction of the registration authority.

(2) The registration authority may, if they think fit, at any time within three years from the establishment of the registration authority, place on Column B of the Register the name of any person who does not fulfil all the conditions of registration, but who has either—(a) in their opinion, proved himself to be an exceptionally qualified teacher; or (b) *has had experience extending over a period of not less than ten years of teaching (other than teaching in an elementary school or teaching of a purely elementary character), and has, in their opinion, shown ability to teach.**

(3) The registration authority shall report to the Board every three months the name of every person registered under this regulation and the grounds of his registration.

SUPPLEMENTAL REGISTERS.

6. There shall be annexed to the Register supplemental Registers of teachers of music, drawing, physical training, manual instruction, cookery, needlework and such other special subjects as may be from time to time approved.

A person shall be entitled to be placed on a supplemental Register if he produces evidence satisfactory to the registration authority †—

(i.) that he has acquired special knowledge of the subject after a thorough course of training,

(ii.) that he is competent to teach the subject, and

(iii.) that he has taught the subject for a period of not less than two years.

A person may be placed on one or more than one supplemental Register, whether he is or is not placed on the Register.

* Framed by the Consultative Committee on the 18th June, 1903.

† The evidence of fulfilment of the requirements of (i), (ii) and (iii) of this regulation that will be accepted is still under consideration.

The form of a supplemental Register shall be the same as that of the Register, except that Columns A and B shall be omitted.

7. A person whose name is placed on one or more of the supplemental Registers, but not on either column of the Register, shall not be entitled to describe himself as a registered teacher without also indicating the supplemental Register or Registers on which his name is placed.

Any person proved to the satisfaction of the registration authority to have wilfully so described himself shall be liable to have his name removed from any supplemental Register on which it is placed, and shall not be entitled for a period of two years to have his name placed on any Register of teachers.

GENERAL.

8. In the case of any person applying to be placed on Column B of the Register, or any supplemental Register, the registration authority may, if they think fit, and after giving the applicant an opportunity of being heard, refuse to register him on the ground that his moral character renders him unfit to be employed as a teacher.

9. The registration authority may at any time remove from Column B of the Register, or from any supplemental Register, the name of any person proved to their satisfaction, and after such person has had an opportunity of being heard, to have been guilty of felony or misdemeanour or of conduct unbefitting a teacher.

10. Every person applying and qualified to be placed on Column B of the Register, or on a supplemental Register, shall, before he is so placed, pay to the registration authority the sum of 21s. A further fee of 2s. 6d. shall be paid by a teacher registered on Column B before any additional qualifications or experience is recorded on the Register or any supplemental Register.

11. No fee shall be payable for placing a person on Column A of the Register, but if any person so placed applies to have registered any qualifications and experience other than those required by the Board from certificated teachers, he shall, before any such qualification or experience is recorded, pay the sum of 2s. 6d.

12. In approving or recognising a degree, diploma, certificate, examination, or other standard of education, for the purpose of Column B, or in recognising an institution for the purpose of training, or in approving subjects for a supplemental Register, the Board shall act after taking the advice of the Consultative Committee.

13. The registration authority shall from time to time and at least once every year present a report of their proceedings to the Board, together with their observations on the working of these Regulations.

14. The Register and every supplemental Register shall be published annually, and shall be open at any reasonable time to public inspection on the payment of the proper fee, and any person shall, on payment of the proper fee, be entitled to take copies of and make extracts from the Register and any supplemental Register, and to have delivered to him extracts from any such Register certified by the Registrar to be true.

The fees for the purpose of this regulation shall be such as may be fixed by the registration authority with the approval of the Board.

15. In these Regulations—

“The Board” means the Board of Education;

“Approved” or “recognised” means approved or recognised for the time being by the Board for the purpose of the regulation in which the expression is used;

The “registration authority” means the body to be established for forming and keeping the Register.

16. These Regulations may be from time to time modified and altered by regulations framed by the Consultative Committee with the approval of the Board.

Appendix A.

A Tripos certificate granted by the University of Cambridge to women.

A diploma or certificate showing to the satisfaction of the registration authority that the applicant, if a woman, has fulfilled all the conditions which, if the University of Oxford granted degrees to women, would entitle her to a degree in that University; *or that under the conditions prescribed by the Delegacy for Local Examinations she has (1) passed the second public examination of the University, or (2) has obtained honours in the Oxford University examination for women in modern languages.**

A diploma or certificate showing to the satisfaction of the registration authority that the applicant, if a woman, has fulfilled all the conditions which, if the University of Dublin granted degrees to women, would entitle her to a degree in that university.

The Associateship of the Royal College of Science, London.

The Associateship of the City and Guilds of London Institute.†

The Fellowship of the College of Preceptors.

A special honours certificate of the Higher Local Examinations (Oxford and Cambridge) granted under the following conditions:—

* These words are inserted by an Order in Council dated 11th August, 1902.

† Inserted by the Consultative Committee on the 18th June, 1903.

- (i.) That the holder has passed in four groups or sections and obtained a first or second class in at least two of them ; and
- (ii.) that the certificate includes at least a pass in two languages, and at least a pass either in mathematics or in logic.

Appendix B.

London University—Intermediate arts.

London University—Intermediate science.

Oxford University—Pass moderations.

Oxford University—Law preliminary.

Oxford University—Science preliminary.

Cambridge University—The general examination.

In the case of women :—

- (i.) “ Moderations ” or “ finals ” in the University of Oxford ;
- (ii.) Tripos examinations of the University of Cambridge or the “ standard of the ordinary degree.”

Oxford and Cambridge Higher Local Examinations (Honours Certificate).

Birmingham University—Intermediate arts.

Birmingham University—Intermediate science.

Victoria University—Intermediate arts.

Victoria University—Intermediate science.

University of Wales—Intermediate arts.

University of Wales—Intermediate science.

Dublin University—Final examination of Senior Freshman year.

Royal University of Ireland—The second university examination in arts.

Durham University—(a) The second public examination in Letters ;*

*(b) the final examination for the title of A.Sc. Durham.**

St. Andrews University—A certificate of the University of St. Andrews granted under the conditions regulating the L.L.A. diploma examinations and bearing :—

*Either that the holder has obtained honours in at least two of the subjects classed under Departments A, B, C of the L.L.A. diploma scheme of examinations ; or that the holder has obtained at least a pass in each of two languages (other than English) and in logic or mathematics.**

The subjects included under Departments A, B and C are :—

A.—Latin, Greek, English (with Anglo-Saxon), French, German, Italian, Hebrew, comparative philology.

B.—Logic, moral philosophy, political philosophy, political economy, æsthetics, political science, comparative religion.

* Added by the Board of Education.

C.—Mathematics, natural philosophy, chemistry, astronomy, geology, physiology, zoology, botany.

College of Preceptors—Licentiate-ship.

Appendix C.

Diplomas or certificates in the theory and practice of teaching, granted by the following institutions :—

Oxford University ;
 Cambridge University ;
 London University ;
 Victoria University ;
 Durham University ;
 Birmingham University (higher diploma) ;
 Edinburgh University (secondary school diploma) ;
 Aberdeen University (diploma with distinction) ;
 Glasgow University (diploma with distinction) ;
 University of Dublin ;
 Royal University of Ireland ;

College of Preceptors (Fellowship and Licentiate-ship, together with the certificate of ability to teach).

*The National Froebel Union (higher certificate).**

University of Wales ((a) certificate and (b) diploma in education).†

Appendix D.

INSTITUTIONS, ETC., FOR THE TRAINING OF SECONDARY TEACHERS.

Course of training for secondary teachers at Oxford for the Oxford University Diploma. (This training would be accepted, provided that students stayed for *three terms, of which the vacation course may be reckoned as one.*‡)

University of Cambridge (day training college), secondary department.

Durham University.

Birmingham University.

Owens College, Manchester.

University College, Liverpool.

Yorkshire College, Leeds (provided the training were of *one* year's duration).

University College of North Wales, Bangor.

University College of South Wales, Cardiff.

* Added by an Order in Council dated 11th August, 1902.

† Added by the Board of Education.

‡ Inserted by the Consultative Committee on the 18th June, 1903.

University College of Wales, Aberystwith.
 Cambridge Training College.
 Maria Grey College, London.
 Cheltenham Ladies' College.
 Bedford College, Edinburgh.
 Mary Datchelor College, London.
 St. George's Training College, London.
 Catholic Training College, Cavendish Square, London.
 St. Mary's Hall, Mount Pleasant, Liverpool.
University College, Bristol.†
Royal College of Science, London (course for teaching Associateship).†
St. Mary's College, Paddington.†

TECHNICAL INSTRUCTION IN NEW ZEALAND.

THE WELLINGTON TECHNICAL SCHOOL AND OTHER CENTRES.

BY ARTHUR D. RILEY, DIRECTOR OF TECHNICAL INSTRUCTION
FOR THE DISTRICT OF WELLINGTON.*

Drawing, etc., in Primary Schools.—Drawing and hand and eye subjects have remained under the control of the Technical School authorities during the past year, but throughout the district the work is practically at a standstill owing to the fact that the new Code or Syllabus, promised by the Educational Authorities, has not been available. It is generally recognised that the present course of drawing and the requirement of two hours for hand and eye subjects are too much, unless relief is to be given in the ordinary syllabus subjects.

TRAINING OF TEACHERS.—The teachers of the district are, however, taking advantage of the classes held by the Technical School in drawing from Nature, brush form work, cardboard modelling, etc., and will thus be prepared for the reforms proposed.

FREE STUDENTSHIPS.—Sixty-two free drawing scholarships have again been awarded to scholars from the primary schools of the City and suburbs, the course of instruction being—for boys, drawing

† Added by the Board of Education.

* See previous article by Mr. Riley, published in "The Record," October, 1900, pp. 451-5, and also our Editorial Note, January, 1901, pp. 20-1.

and woodwork; for girls, drawing from plant form with elementary design, light and shade, etc.

Cookery.—Cookery has been continued as formerly in the town and country centres, the number under instruction being—town, 494; country, 315.

Cottage Gardening.—Agricultural chemistry and cottage gardening have been carried on by the Mauriceville West School with a considerable amount of success, and it is hoped other country schools will follow this excellent lead.

Higher Grade School.—A higher grade school, having an intermediate course of study between the primary schools and the technical school, is an urgent necessity. A school so established would enable a course of instruction to be given upon the most modern lines to all scholars now in the seventh Standards, particularly in the City and suburban schools. Manual and domestic instruction, chemistry, physics and mathematics and commercial subjects could by this means be more practically dealt with. Some such scheme of an intermediate school is an urgent necessity in this City, for a very large percentage of children will otherwise proceed to work at a time when additional training provided by such a school would be of exceptional advantage.

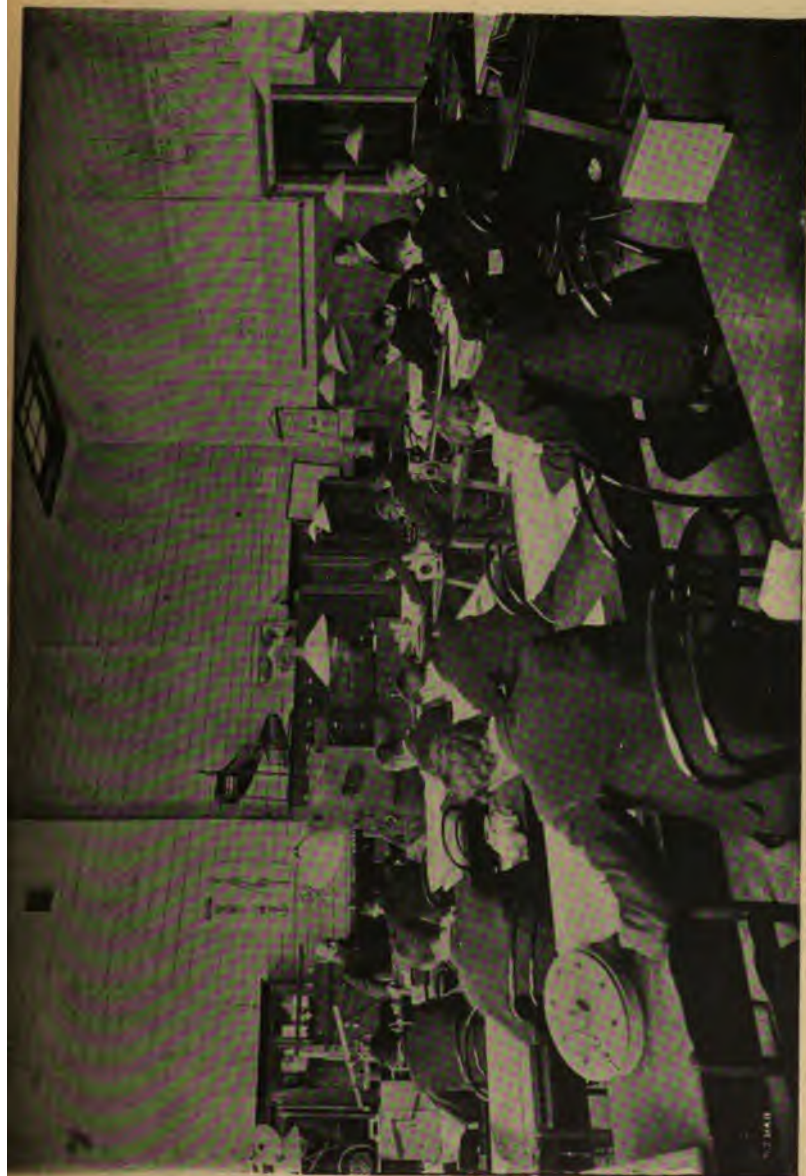
Art.—In the art section of the school (see illustration on p. 378) considerable progress has been made in the design and modelling work under Mr. R. Herdman-Smith, late of the Bath School of Art, England. Metal repoussé (see illustration on p. 320) and metal embossing have also been established as classes in the art section. Wood-carving is now under Mr. A. Fraser, late of the Heriot-Watt College, Edinburgh. In painting, studies in oil and in water-colour, there were awarded, in the English National Competition, a National Bronze Medal and a National Book Prize.

Engineering.—In engineering, the various classes in mathematics, practical mechanics, steam and mechanical drawing (see p. 379) were placed under the control of Mr. W. McKenzie, a Whitworth Scholar and late lecturer upon engineering to the Adelaide University.

Architecture.—In architecture and building construction, the rooms provided were found too small to accommodate the numbers attending.

Carpentry and Joinery are now successful classes under an experienced tradesman (see illustration on p. 342).

Plumbing.—In the theory and practice of plumbing (an illustration of the workshop is given on p. 353) the course of instruction is amended, and arrangements have now been made for a complete course for all apprentices. The master plumbers and the



THE TECHNICAL SCHOOL, WELLINGTON, NEW ZEALAND (MACHINE DRAWING ROOM). (See page 376.)



NEW ZEALAND (DRAWING FROM THE ANTIQUE—DAY 11 AM).

journeymen plumbers, at a joint meeting, agreed with the action of the Plumbers' Board of Control in the regulations requiring all apprentices to go through the prescribed course, which is arranged as follows :—

First Year.—One night per week, practical plane and solid geometry and model drawing ; one night per week, shop practice in setting out work and hand sketching. Fee, 12s. per quarter. It is a suggestion that the first year's fees be paid by the master. Students will present themselves for examination in December in geometrical and model drawing.

Second Year.—One night per week, arithmetic as applied to plumbing and elementary principles of plumbing ; one night per week, practical lead working. Fee, 12s. per quarter.

Third Year.—One night per week, principles of plumbing continued ; one night per week, practical plumbing. Fee, 12s. per quarter, or 16s. 6d. for three nights per week.

Fourth Year.—One night per week, principles of plumbing advanced ; one night per week, practical plumbing, with complete fitting up of household sanitary conveniences and hot water supply. Fee, 12s. per quarter, or 16s. 6d. for three nights per week.

Note.—Students are required to satisfy the instructor as to their year's work before being permitted to take up the next course. A local honours course will be available in 1904. The authorities of the Technical School will be pleased to furnish a report upon the year's work of any apprentice to his employer.

The examinations of the Plumbers' Board require that candidates in the principles and practice of plumbing must be of the full age of 21 years, have served five years at the trade and have passed through the course of work above mentioned before presenting themselves for examination.

The following exceptions may be made subject to the consent of the Plumbers' Board (application for any exception to be made in writing) :—(1) Candidates who have served their apprenticeship, for a substantial part thereof, outside the City of Wellington ; (2) candidates who are now in the last two years of their apprenticeship shall only be required to pass under the conditions existing to December, 1902, *i.e.*, for plane and solid geometry and model drawing ; (3) candidates at present in attendance at the Technical School are classified for instruction purposes, and permitted to present themselves for examination in accordance with their classification.

No candidate now serving his apprenticeship (or its equivalent) in this City is allowed to present himself for examination at the

Technical School on or after December, 1904, unless he shall have taken the full course of instruction herein prescribed.

The certificates of the City and Guilds of London Institute dated 1904 and thenceforward are not accepted as a qualification, except in the honours grade.

Candidates who at their last practical examination shall have failed to obtain 50 per cent. of the total marks may not again present themselves before the expiration of six months from the date of such last examination.

Candidates must have passed in both the theory and practice of plumbing before receiving a full certificate.

Examinations will be held annually as follows:—The City and Guilds of London Institute, in May for honours only; local, in July, if necessary, and in December.

The fees are—for practice and theory, 10s.; for theory only, 2s. 6d.

Drain-layers shall present themselves for a practical examination in the laying of drains, bedding, jointing and insertion of branches and traps, etc. Examinations will, if necessary, be held annually in March, June, September and December; application to be made at the office of the City Engineer, by whom the examination will be held.

General and Commercial.—The general and commercial classes in mathematics, book-keeping, shorthand and typewriting, arithmetic, Latin and English have generally done satisfactory work.

Arts and Crafts.—In the Arts and Crafts Guild of the School some of the sections have lapsed from lack of interest, while others, notably the architectural, art needlework and photographic sections, have done excellent work.

Examinations.—The examinations of the City and Guilds of London Institute and the Board of Education, lately the Science and Art Department, are becoming more and more unsatisfactory, owing to the enormous length of time before the results are known, and in the latter case especially so. We are already at the middle of March, and no results of the last June examinations are to hand, whilst we are required to apply for this year's papers in January. A Local Colonial Examination is a necessity.

Library.—Our library (see illustration on p. 359) now contains 1,445 volumes upon technical and art subjects, 1,088 works having been lent to the students during the year, whilst 24 periodicals are at all times available to the students.

Management.—A new Board of Management has now been formed, consisting of four members of the City Council, three members of the Education Board and one member of the Industrial Association, one vacancy being left for the Chamber of

Commerce. The number of members is decided by the amounts of the contributions of the various bodies.

Students at the Central Technical School.—The following figures represent an increase of 338 entries upon those of 1901:—

DAY CLASSES.				
	1st year.	2nd year.	3rd year.	4th year.
Design	—	19	25	21
Drawing and painting (whole-day students).....	12	12	14	11
" " (half-day students)	28	29	27	24
Geometry and perspective	13	9	7	6
Secondary school scholars (drawing).....	—	28	27	25
" " " (manual instruction).....	—	15	17	17
Primary school scholars	50	46	45	37
Wood-carving	9	15	12	9
Clay modelling	20	22	29	21
Repoussé	—	—	14	12
Shorthand	30	31	29	31
Typewriting.....	18	13	13	15
Teachers and pupil teachers (Saturday)	137	195	125	120
Wood-carving (Saturday).....	15	14	20	17
EVENING CLASSES.				
Architectural and building construction	40	47	39	38
Mechanical drawing	67	69	59	51
Drawing	71	74	76	72
Life class	6	8	7	9
Practical plumbing.....	43	41	45	41
Theory of plumbing	43	32	30	17
Wood-carving and modelling	15	20	15	18
Mathematics	23	18	17	18
Joinery and carpentry	26	18	25	26
Shorthand and typewriting	43	31	42	27
Design	—	18	26	20
Geometry and model	73	64	48	35
Arithmetic	21	27	24	17
Electric lighting	32	23	12	12
Book-keeping	67	57	48	42
Latin	7	12	8	5
English	11	15	17	6
Practical mechanics	22	15	6	6
Totals.....	942	1,037	948	826

Extension.—There is an urgent necessity for the extension of our buildings, additional class-rooms and workshop accommodation being required for the steady growth of numbers in the various departments.

The Manual and Technical Instruction Act of 1900 has greatly facilitated the conduct of the work financially, a result that would naturally be anticipated from the ample provisions of the Act, which were summarised and compared in "The Record" for January, 1901, with those of the English Technical Instruction Act of 1889.

THE LONDON TECHNICAL EDUCATION BOARD AND PRACTICAL GARDENING.

THE SCHOOL AT REGENT'S PARK.*

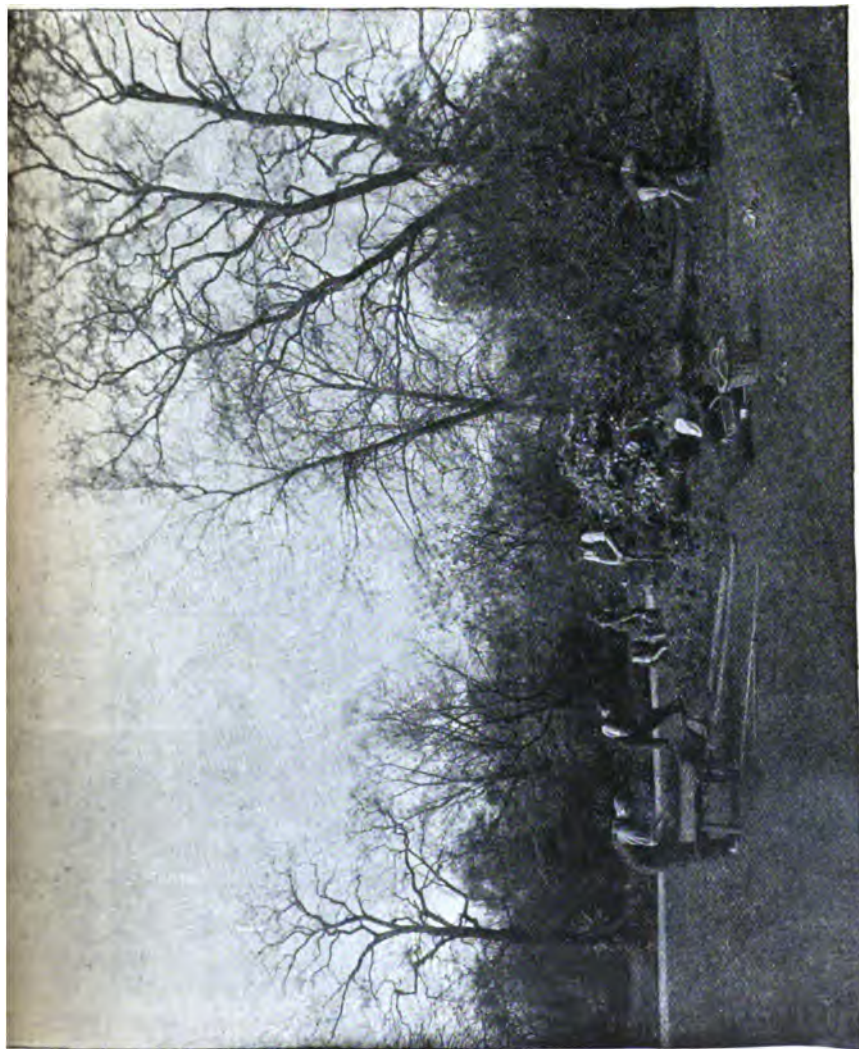
In 1897, the Technical Education Board of the London County Council made a maintenance grant of £100 to the Royal Botanic Society for the establishment of a school in practical gardening on condition that a certain number of London County Council scholars should receive free tuition. The experiment was very successful, and since then annual and increased grants have been made and the number of scholars has been increased.

Scholarships are awarded to boys who wish to become gardeners, not upon the result of a set examination but upon the consideration of the record and qualifications of the candidates. Each candidate furnishes the Board with a statement of his past career and his future intentions, the application being supported in each case by a specific recommendation from the head-master and other teachers. The scholarships are open to boys not less than 14 and not more than 16 years of age, and provide free instruction in gardening and horticulture at the gardens of the Royal Botanic Society, and a maintenance grant of £20 per annum for scholars under 15 and £25 per annum for scholars over 15 years of age. The scholarships are awarded in the first place for one year, but are renewable for a second and third year provided the progress of the scholar is satisfactory.

The Society was thus encouraged thoroughly to equip the school at the outset, a regular supply of students being assured. At the present time the school consists of 33 pupils; of these, 20 are London scholars who, having gained County Council scholarships, have elected to take up gardening as their vocation. The great improvement in the physique and general condition of the boys gives satisfactory evidence of the healthfulness of the occupation.

The Society finds very little difficulty in obtaining good situations for the pupils who have passed through a three years' course and who have obtained the diploma of the Society. It is interesting to notice that there has been a considerable demand for gardeners from this school from nurserymen, and positions are already held by the Board's scholars in the nurseries of Messrs. William Paul and Son, Waltham Cross, and Messrs. Williams and Son, at

* This account is based upon particulars published in the Tenth Annual Report of the Technical Education Board of the London County Council dealt with in the Reviews on pp. 387-9.



THE SCHOOL OF PRACTICAL GARDENING, REGENT'S PARK, LONDON (PLANTING-OUT). (*See page 385.*)



THE SCHOOL OF PRACTICAL GARDENING, REGENT'S PARK, LONDON (CHEMICAL AND BOTANICAL LABORATORY). (See page 386.)

Holloway, and several have been appointed as assistant gardeners at important seats in the country. One of the most promising of the scholars has been appointed assistant instructor in the gardening school.

As the gardens of the Society consist of 19 acres of lawns, shrubberies, flower-borders, a large conservatory and spacious greenhouses (see illustrations on pp. 289, 305, and 383), there is no branch of gardening which is not practised, and as the pupils are drafted in turn to the various departments, and take part in every operation going on under experienced men, an all-round knowledge as rare as it is valuable is obtained.

The course commences in the middle of October and lasts three years, at the end of which time a final examination takes place conducted by expert external examiners, and diplomas are awarded to those who pass.

The pupils are under the direct superintendence of a head-instructor and three assistants. They are divided into three divisions, according as they happen to be in their first, second or third year. During the first year they are thoroughly grounded in the elementary outdoor work of a garden—the uses of implements, digging, trenching, hoeing, preparing for planting, the care of lawns, mowing, sweeping, weeding and rolling, the flower garden, care of herbaceous borders, pricking off, planting, staking and tying plants, and, in the fruit and vegetable garden, double-digging, manuring and preparing seed beds. Indoors they prepare the material for composts and assist in potting, watering, top-dressing and tying plants, in the propagation of cuttings and pricking-off of seedlings.

At the expiration of each school year an examination by an outside judge takes place; this consists of practical work in the garden and papers on subjects connected with gardening.

Second-year students practise the preparing and storing of manures and methods of application; the care of lawns, flower and kitchen garden, shrubbery, fernery, etc.; sowing of vegetable and flower seeds and planting tubers; growing vegetables, flowers and fruits; outdoor tomato culture; also horticultural building, repairing, painting and glazing; propagation by division of roots, stems and tubers; insect and fungoid pests, and methods of extermination; melon, cucumber and tomato culture; principles of hot-water heating.

Third-year students are taught the pruning of trees and shrubs, and mowing with the scythe; special classes of plants, hybridisation and selection; the care of conservatories, plant-houses, frames and pits; spraying plants, mushroom culture, vine and fig culture and budding and grafting.

Instruction is also given in the keeping of garden accounts, stockbooks, stores, etc.; purchase of pots, gravel, sand, peat, manure, etc.; elementary meteorology, the theory of landscape gardening, plant parasites, sprays and washes for insect pests.

In addition to the practical outdoor work done by the pupils in each division, the scientific principles underlying each operation are explained in the class-room, and the students are encouraged to make daily notes of their work. Lectures and demonstrations on botanical and horticultural subjects by well-known lecturers are given each year, which all students are required to attend. Those given last season dealt with fungoid and insect pests of plants.

A feature of much value from a floricultural point of view is the exhibition of plants and flowers which is given each year in the gardens. Here are displayed all the new and improved varieties of plants, and the best specimens grown by the great nurserymen. Students have free access to all shows, and are taught to note and familiarise themselves with the points of excellence of each exhibit, thus fixing in their minds a standard for future guidance.

Aided by a grant from the Technical Education Board, the Society has now erected and equipped a laboratory (see p. 384), accommodating 30 students, for the study of botany and horticultural chemistry in connection with the school, and here students attend lectures and demonstrations and receive practical instruction in laboratory work under a director who has been specially appointed by the Society.

A special meeting of the Royal Botanic Society, presided over by the Earl of Aberdeen, was held on April 1st, 1903, when the Chairman of the Technical Education Board delivered an address and formally opened the new laboratory.

Altogether, a sum of £2,000 has been spent upon the school, and towards this the Technical Education Board have contributed £850.

In connection with this subject of gardening, reference may be made to the joint action of the Parks and Open Spaces Committee of the London County Council and the Board in providing botanic gardens in the parks for the instruction of elementary school scholars at a cost of £200 per annum. The three parks selected are Battersea, Ravenscourt and Victoria. Beds are specially prepared for the cultivation, in each park, of plants belonging to 20 of the most important natural orders, and arrangements are made for competent assistants to be present at regular times to give information to students and teachers and to provide specimens for study whenever this can be done without detriment to the plants.

IX.—REVIEWS.

(A) THE COUNTY OF LONDON.*

The tenth annual report of the Technical Education Board of the London County Council clearly demonstrates the fact that the scheme of the Board has a very practical application to the many and varied industries which find a home in the metropolis. This is seen in the direct benefits and other advantages obtained from the instruction afforded in classes and institutions by many of the workers in those industries. These points are emphasised in the accounts given in the report of the history and work of a number of special individual schools and institutions which the Board have been the medium of establishing; and additional interest is attached to the information by the insertion of 45 excellent illustrations of the interior and exterior portions of certain institutions. One of these accounts, with its accompanying illustrations, shows what the Board have done in the direction of training practical gardeners, and we reproduce it by kind permission on pp. 382-386. Brief statements are also included in the report as to all the efforts made by the Board in certain directions, *e.g.*, secondary schools, commercial education, trade instruction, polytechnics and domestic economy; but, as these have already been referred to in our columns, recent developments only now need notice.

For the year 1903-4, the Board estimate their requirements at £192,000, and this sum, which is the largest grant yet made in respect of any one year and which represents practically the whole of London's share of the Residue, has been voted by the County Council. Of this, an amount of over £42,000 will be required to meet the claims already, or about to be, incurred for capital outlay upon, or for the further equipment of, different institutions.

POLYTECHNICS AND TECHNICAL INSTITUTIONS.—As part of the prospective expenditure of £70,000 upon the polytechnics, indicated last year (see "The Record," Vol. XI., July, p. 360), extensive new buildings are being, or are about to be, erected at the Northern, the Borough, the Battersea and the South-Western Polytechnics at a total cost £50,000, and for Hackney Technical Institute; while large developments are taking place at the City of London College and at Paddington, where the re-organised institution will serve the district of the north-west of London.

All the day departments at the various polytechnics which provide systematic courses for trade students are working most satisfactorily. Among these may be mentioned the day schools of architecture, of photography and of carriage-building at Regent Street, and the National School of Bakery and Confectionery in the Borough. There is evidence that the number of special departments dealing with different trades will increase at these institutions. A department for technical instruction in electric traction is in process of formation at Battersea Polytechnic, and the establishment of a school of technical optics will probably be undertaken at Northampton Institute, Clerkenwell, in co-operation with the leading trade agencies. In connection with the optical instrument industry, it is pointed out in the report that England is suffering from the want of technical instruction, and that the value of scientific instruments imported rose

* London County Council: Annual Report of the Technical Education Board, 1902-3, presented to the Council 12th May, 1903 (London: P. S. King and Son, 2s. 6d.).

from £99,000 in 1897 to over £700,000 in 1901. There are now over 4,000 evening classes of all kinds carried on in institutions conducted or aided by the Technical Education Board, and the number of day students, including pupils in the day schools, at the polytechnics, reaches 5,800.

SECONDARY SCHOOLS.—The task of providing suitable facilities for practical instruction in science and manual work in the secondary schools has been, as a whole, practically completed, as many as 81 laboratories, lecture rooms and workshops having been equipped with the aid of the Board. One result of these improvements is to be found in a large increase in the amount of Government grants received by aided secondary schools, this form of aid having risen in four years from £9,533 to £14,712. As regards the direct and indirect results of the receipt of these grants upon the general efficiency of the teaching in the schools, the report does well to note that "the change of method in awarding Board of Education grants for science teaching in secondary schools in recent years by removing the necessity of presenting young children for public examinations has had an excellent effect. The freedom now given to science teachers to submit their own schemes of instruction to meet the needs of particular schools or for other considerations has produced an interesting variety in methods of teaching and courses of instruction which would have been impossible under the more rigid system of elementary and advanced science and art examinations. The very liberal grants awarded by the Board of Education have also done much to raise the standard of efficiency of the teaching by making it possible to reduce the number of children taught together in science classes by increasing the number of well-qualified teachers." The development of the art instruction in secondary schools along more educational lines is now receiving particular attention.

SCHOLARSHIPS.—The Board's scholarship scheme, which involves a total annual outlay of £50,000, assists 2,938 scholars and exhibitioners. In connection with the operation of the ordinary grades of scholarships, it is worthy of record that, at the last open competitions for intermediate and county scholarships, 55 per cent. of the former were obtained by junior scholars and six out of eight of the latter by intermediate scholars who had previously held junior scholarships from public elementary schools. In addition to from 80 to 100 teachers' training scholarships now awarded, the scheme has recently been extended by the institution of (a) ten scholarships to young women of 18 and 21 years of age who have already been not less than one year in domestic service, (b) twelve scholarships for crippled, deaf and blind boys and girls between 14 and 17 years of age, tenable at technical or art schools for the study of technological, artistic and domestic subjects, and of (c) other scholarships for boys who intend to enter some branch of the wood-working industry.

DOMESTIC ECONOMY.—The value of the training given in the 14 day schools of domestic economy established by the Board is brought into evidence for the first time by an interesting summary of the previous appointments since training and the post now held by 65 of the scholars. With quite a few exceptions, all of these have taken up some form of teaching, chiefly in the metropolis and especially in institutions connected with the Technical Education Board and the London School Board. The course at these training schools has been extended so as to cover a full school year; the curriculum has been consequently improved and strengthened, all pupils now being expected to do work (including household arithmetic) which in former years was only required of those taking a second course of instruction. As regards general technical instruction for women, a special sub-committee has recently been appointed by the Board to consider the subject.

UNIVERSITY EDUCATION.—The advanced instruction in the polytechnic institutions has been greatly stimulated by the establishment of the University of London as a teaching body. Six of these institutions have been recognised as giving full courses for degrees in arts and science, for which large numbers of students have already entered; and others have been induced to prepare for university courses. The number of free places at four of the schools of the University, which receive direct grants from the Board amounting to £5,000, has been considerably increased, partly in consequence of the establishment of the London Day Training College, the development of which must eventually mean further financial support to the schools. Nineteen professorships, lectureships and demonstratorships in various branches of university teaching have been instituted for a yearly outlay of £10,000.

(B) NOTES UPON LOCAL ADMINISTRATION AND ORGANISATION IN VARIOUS COUNTIES.

Bedfordshire.—A very interesting Memorandum,* by Mr. Frank Spooner, upon educational work in this county has been issued recently. It deals with the question from two points of view—(1) the achievements of the past twelve years, and (2) suggestions for future operation. Thus, the document should serve the useful dual purpose of a record of the work of the late Technical Instruction Committee, who were necessarily kept aloof from the primary schools, and of a guide to the new Education Committee, who have the much larger task before them of organising all grades of education. The Memorandum afterwards proceeds to review the needs of the county in connection with primary and secondary schools respectively.

PAST ACHIEVEMENTS.—These have been carried through under great, and not merely initial, difficulties, the chief of which were the restriction of the range of the instruction and the unbelief of the population in the need of it, the low average standard of general education, the deplorable lack of suitable teachers and lecturers and last, but not least, the limited funds available. It is not surprising that under such difficulties preliminary effort only fitly designates the character of past work, the appropriateness and utility of which can, however, be readily measured by the following abridged summary:—

In five urban centres in the county, local committees exist for the provision of instruction in the sciences and in art as well as in commercial and purely technical subjects, the demand being in excess of the supply; in numerous village centres (upwards of 40) there are evening schools in which, in addition to instruction purely continuative of the elementary school, there is imparted knowledge special to rural life or to the domestic arts of the poor; promising beginnings have been made of a county institute, where agricultural instruction may be obtained intermediate between that provided in the local evening schools and that to be obtained at the higher agricultural colleges, whilst the more practical needs in developing the arts of husbandry are not neglected; peripatetic teachers and lecturers have awakened a real desire in the villages for knowledge of subjects now recognised as important; substantial assistance has been given to the Bedford Grammar School in the establishment of engineering and other workshops, and to the Bedford Modern School and the Dunstable Grammar

* Bedfordshire County Council: Education Act, 1902—A Memorandum submitted to the Technical Instruction Committee at their last meeting held on 24th April, 1903, by Frank Spooner, Organising Secretary for Technical Instruction (Shire Hall, Bedford).

School in introducing practical instruction in science; and trained district nurses have been provided for the benefit of a considerable number of villages. In each of the last three or four years close upon 2,000 students have received class instruction continued during the whole of the winter months, to say nothing of the large total of persons attending short lecture-courses in numerous local centres.

GENERAL SUGGESTIONS FOR FUTURE WORK.—These, which should be found to apply to all rural areas, are laid down as (1) due regard to education as a whole and not detached branches of it, (2) the arrangement of subjects into properly-defined courses, (3) the use of peripatetic instruction as an avenue only to permanent teaching, (4) the placing of educational advantages within easy reach of all parts of the county by means of, at least, evening schools or scholarships attached thereto. Finally, the subject of *co-ordination* is given great prominence in these suggestions, as it is well considered to be "the fundamental problem of the Education Authority," and "a term to be interpreted in a two-fold sense. (i.) In a narrower sense the term refers to matters internal to the individual school. The curriculum of each type of school should exhibit the quality of co-ordination in its choice and arrangement of the subjects to be taught. (ii.) In its broader and more general sense the term refers to the schools taken collectively. Each type of school or institution should exhibit the quality of co-ordination in the relation which its curriculum as a whole bears to the curricula of schools or institutions of the other types. A school which has due regard to co-ordination in the former sense aims at securing not only a 'general' education, *i.e.*, an education directed to achieve a general preparation in character and disposition, in intelligence and skill for all the duties of life, but a 'special' education so far as this is possible under the conditions of age or domestic circumstance, calculated directly to prepare the scholar for the labour, trade or profession to which he seems destined. Schools or institutions which have due regard to co-ordination in the latter sense aim equally at a general and special education as just described, but with their curricula so designed that a scholar may pass from a school of the lower type to a school of the higher type easily and without his educational career suffering undue interruption. The instruction obtainable in the various schools or institutions being required to be in true continuity and progression, it will be a matter of chief concern with the Education Authority to keep this principle well in view in respect of whatever schools of each type it may control or provide, as well as of those other schools or institutions which it may select at which its scholarships or exhibitions may be tenable. The details are matters for expert advice, but the principle is one which cannot be too well grasped or too constantly kept in view by every member of an Education Authority."

THE NEEDS OF PRIMARY AND SECONDARY SCHOOLS.—With respect to the primary schools, it must suffice to say here that the training of teachers will have to take precedence in the programme of the Local Education Authority. In this connection, it is held that, for a time, special training must be provided for teachers in rural schools, but that there will be far greater opportunities than under the old conditions for the development of those schools, these opportunities having been opened out by "the association of the schools which is now obtainable." As regards secondary schools in Bedfordshire, the supply of school places falls short of the estimated requirements by nearly one-fourth. At present there is provision for only 330 scholars for a population of over 136,000, inasmuch as the bulk of the 2,000 scholars attending the schools in Bedford are chiefly boarders from outside the county. To meet this deficiency

it is submitted "is a problem of grave importance to be solved in the next few years." Then the necessity for establishing completely organised evening schools offering progressive courses of instruction properly co-ordinated (specimens of which are given) has already been mentioned. These steps will, of course, render a comprehensive scheme of county scholarships absolutely imperative. The formation of at least two schools of art (at Bedford and Luton) is regarded as essential, there being no institution of the kind within the county borders.

Derbyshire.*—COMPARISONS WITH 1890-1.—In the last report of this County Committee some striking figures are supplied which indicate the advances made during the last twelve years. The Committee's aid offered in 1892 to science and art classes already existing caused the number of centres to rise in four years from 27 to 53, and the enrolment from 1,277 to 4,094—in other words, the centres were nearly doubled and the enrolment more than trebled. "The statistics relating to the subject of mining are of special interest. Prior to 1891 not more than 20 students appear to have been attending public classes in this subject, whilst the average enrolment in local classes in coal mining for the past eight years has been about 500." As regards evening schools, in the session 1890-1 there were not more than ten with a total enrolment of less than 600; last session there were about 80 schools and the enrolment was 3,835, the Government grants received under the Clause VII. Regulations being nearly £2,500. Perhaps, however, the most striking facts are available in connection with the work done in the direction of organising an adequate supply of secondary schools for the county. The Committee's action has been based most successfully upon a scheme adopted before 1893-4, a synopsis of which was published in "The Record," October, 1902 (pp. 446-50). It appears that in 1891 there was only one public secondary school for girls; now there are eight girls' schools, to be increased shortly to ten, and the number of scholars in attendance is increased nearly four-fold. This great change was effected partly by improving existing schools and partly by establishing new schools (four), each of which has an interesting history briefly noted later; two other schools for the Heanor and Swadlincote districts are much needed. The effect upon the operation of the scholarship scheme was most marked. "In 1892 only six out of 60 successful candidates were sent to schools in the county; at the present time, out of about 250 minor scholarships, 230 are being held at schools within the administrative county and only 20 at schools . . . outside." Again, during the last eight years pupils in county schools gained five major and 34 intermediate scholarships, while pupils in outside schools obtained 14 major and three intermediate scholarships. Of the four new schools for boys and girls established since 1891, the school at Heanor was formed in 1893 by the Heanor Local Board, and is supported by Board of Education and County Council grants and the proceeds of a penny rate. The school at Clay Cross was established in 1893 by the School Board as an organised science school: it is now managed by a joint committee of representatives of the School Board and the County Council. The school at Bakewell (Lady Manners Grammar) was carried on in inconvenient buildings prior to 1874, when the funds of the charity were allowed to accumulate. New buildings were erected in 1895-6, at a cost of £3,000, of which a sum of £1,200 was contributed by the County Council, and the school opened in September, 1896. The school buildings at Glossop were presented to the town

*Derbyshire County Council: Report of the Technical Education Committee on the work of the session, 1901-2.

in 1901 by Lord Howard of Glossop, equipped jointly by the County Council and the Town Council, and opened in the same year. In addition, the Girls' High School at Chesterfield, which was opened as a private school in 1892 was placed under public management in the next year.

Leicestershire.—The condition of the secondary schools in this county in 1891 and some of the results of the policy subsequently pursued by the Technical Education Committee of the County Council were referred to in "The Record" for January, 1903 (p. 6). In a later review* of the whole matter the Committee show that the new schools built and the enlargements made to others have caused the number of pupils to increase from 551 in 1891 to 886 (574 boys and 312 girls), that of girls being nearly doubled. And, further, the staff as a whole has been more than doubled, the method of employing visiting masters and mistresses for special subjects having been extended to eleven of the 15 existing schools. Remarkable progress has also been made with evening schools and science and art classes. Of the former, only ten were in existence in 1890; last session there were 83 schools with 5,549 scholars enrolled. Of science and art centres, there were only three in 1890 with 77 students, while last session 69 classes containing 674 pupils were formed at 14 centres. The grants to these schools and classes from the Board of Education and the County Council now aggregate £3,000 a year.

Surrey.†—INITIAL ORGANISATION UNDER THE EDUCATION ACT, 1902.—The Surrey Education Committee are to the forefront among Local Authorities in issuing complete statements of their efforts to bring all the provisions of the Education Act, 1902, into speedy operation. Apart from the interesting developments taking place and noted below in connection with higher education, facilitated by the useful work of the late Technical Education Committee, lines of policy in the administration and organisation of elementary education are laid down that should be of practical service to other County Authorities devising new schemes. Of the more important steps taken, special mention should be made of the establishment of a Consultative Board to the County Committee, representative of all grades of education and especially of those persons actually engaged in the various branches of teaching; detailed particulars of this scheme will be published in our next issue. Further, three valuable reports appear, preceded by interim regulations, upon the important subject of school attendance: these contain the specific recommendations adopted by the Elementary Committee, who advocate, *inter alia*, the abolishment of the clerks of the old Union School Attendance Committees, the appointment of Superintendent Officers to special county divisions (four out of eight are already appointed) and the encouragement of a system of paid correspondents to voluntary schools (grouped). Lastly, other circulars, etc., to which reference cannot here be made, deal with elementary education as follows:—a list of the School Boards in the county with the constitution of the proposed new Boards, the duties of Council and voluntary school managers, schools of both kinds taken over and lists of their managers, the delegation of powers to Joint Boards of Council schools, etc. The terms of the agreement of co-operation relating to higher education between the County Council and the Richmond Corporation,

* Leicestershire County Council: Report of Technical Education Committee presented to and adopted by the meeting of the Council held on the 13th May, 1903.

† First and Second Reports of the Surrey Education Committee received at the meetings of the County Council held on 12th May and 28th July, 1903, respectively.

published in a tentative form in the last issue of "The Record" (pp. 203-4), have now been finally settled, but the modifications "in no way alter the spirit of the proposals." The last phrase (three lines) in Clause (1) has been struck out, and it has been decided to refer any matters that may arise for determination to an arbitrator; the agreement takes effect from 1st October next. Of the remaining four Part III. Authorities, at Wimbledon a Joint Committee has been formed for the management of the local technical institute and secondary school, consisting of 15 members nominated by the Urban District Council, five by the County Council and five and three respectively by the Merton and Morden Parish Councils. Difficult legal points have so far hindered the adoption of a scheme of co-operation with the Kingston Corporation; and no agreements have been entered into with the Guildford and Reigate boroughs, the latter authority having declined the Council's proposals, and this means some financial adjustment on account of the technical institute, and, possibly, the transfer of its building to the sole management and control of the County Authority.

A SUGGESTIVE SCHEME FOR CO-ORDINATING DAY AND EVENING INSTRUCTION.—The Higher Education Committee propose "to try as an experiment, in certain selected districts, the following scheme for providing instruction in both elementary day schools and in evening schools in cookery, manual instruction, practical horticulture and 'nature-study':—

"A district teacher in each subject would be appointed for a group of ten day schools and five evening schools. Each such teacher might take a lesson in five elementary day schools during the last hour of the morning, and in five others a lesson beginning, say, at 3-30 in the afternoon on five days per week, to which in the subjects of cookery and 'nature-study' older pupils, who have just left school, might also be admitted. These teachers would then have adequate time at their disposal for evening classes, even at some distance from the day school at which they have been last serving. The classes in cookery for girls and in manual instruction for boys would be parallel in the winter months, and in 'nature-study' for girls and in practical horticulture for boys parallel in the summer months.

"It is understood that the Board of Education, which now recognises cookery and manual work being taught in centres to which scholars are brought in detachments from neighbouring schools (a system which will be adopted where possible), will raise no objection in scattered rural districts to classes in either cookery or manual work being conducted in the ordinary school rooms by means of simple, and in some cases portable, fittings and apparatus. . . . It is purposed to try these proposals in the autumn in the Farnham district, the Godalming district and in the parishes immediately contiguous to Kingston. In some cases it may be necessary to modify this system by so prolonging the day school hours as to make it possible for children who have left school to attend the same classes as the elder day school scholars. As these subjects are of a practical and, if properly taught, of an interesting and more or less recreative nature, there would be no danger of over-pressure in the adoption of this expedient."

It is pleasing to note that the above proposals are based upon, and follow on a more extended scale, the suggestions as to the grouping of schools and the employment of peripatetic teachers for special subjects which have for some time been pressed upon the attention of County Authorities by the Agricultural Education Committee. It is to be hoped that other Authorities will seriously consider them now that the direction of elementary day schools as well as of evening schools comes within their jurisdiction.

SECONDARY SCHOOLS AND THE TRAINING OF PUPIL TEACHERS, AND FINANCE.—The development of the secondary schools with a view to their extended usefulness in the larger educational scheme is already being systematically taken in hand. Commercial sides are to be started tentatively at three grammar schools (Guildford, Richmond and Reigate); a special grant of £200 is guaranteed for three years to each school, and an addition will have to be made to the county staff in commercial subjects. At a conference held recently with the head-masters and mistresses of the secondary schools in Surrey it was declared to be desirable to make commercial subjects a feature of the curriculum of the schools. The general opinion was also expressed that the training of pupil-teachers should be undertaken, as far as possible, in secondary schools by grants from the County Council equivalent in amount to their minor scholarships; that pupils to be eligible should receive certificates from their elementary schoolmasters as to their probable suitability to become teachers, and should pass first or second class in the Minor Scholarships Examination; that they should remain in secondary schools from 13 to 16 years of age, and, after 16, be bound apprentices and remain for two more years as half-timers, subject to satisfactory reports from their masters during both periods. No change has yet been made, however, in the maintenance of the pupil-teachers' centres in the county, but a joint sub-committee of members of the Higher and Elementary Committees has been appointed to consider the whole question of the training of pupil-teachers. Additional provision for secondary education is now being made at Farnham and Haslemere. The boys' grammar school at Farnham is to be entirely bought out and housed in a new building, and the girls' school, now carried on under semi-private management in temporary premises, is to be transferred to the present grammar school building. The combined project will involve a total outlay of £7,250, of which a sum of £3,000 is a new grant from the County Council. In the smaller rural district of Haslemere a building and land have been purchased for a sum of £900, and it is probable that a mixed secondary day school of the agricultural type may be formed there. In considering the whole position of secondary education, and in view of the tasks accomplished during the last nine years, it should be noted that a sum of £29,300 has been borrowed, of which £11,295 has been paid off, and that the present capital charges amount to exactly one-seventh of those for maintenance, or £3,070.

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(Commissioner for Labour at the Board of Trade),

WITH AN INTRODUCTION BY THE

RT. HON. JAMES BRYCE, M.P.

(late President of the Board of Trade.)

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LIST OF CONTRIBUTORS.

- Rt. Hon. JAMES BRYCE, M.P., D.C.L., late Regius Professor of Civil Law in the University of Oxford.
Rt. Hon. ARTHUR H. D. ACLAND, Honorary Fellow of Balliol College, Oxford.
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GODFREY R. BENSON, M.A., Balliol College, Oxford.
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I.—EDITORIAL NOTES.

The present number of "The Record" will complete the Twelfth Volume of our journal, and it may be opportune to note that this Volume contains the legislative enactments which constitute the bases of the new educational *régime*. We have done our best to impress our readers with the vast possibilities which now lie before them, and the information we have been able to publish as to the procedure throughout the country can hardly fail to indicate how much has been done by individuals and by our Municipal Authorities to systematise and to develop suitable facilities for the education of our people. These facilities are so varied and manifold that it is hard to keep pace with those many forces steadily forging ahead in the direction we would have them pursue. When we look back to the early years of the National Association, we may well congratulate ourselves upon the progress that has been made during the interval, while the contents of the current issue of "The Record" should inspire educationalists and administrators alike with that enthusiastic spirit which is always associated with great causes and with their consequent national benefits.

* * * * *

The question of the training of teachers is fast becoming a matter of extreme urgency. In a special article on pp. 415-24 we give some particulars in regard to the immediate need for the provision of additional accommodation for the training both of elementary and of secondary teachers. The passing of the Education Act of 1902 has for the first time made it possible for Local Education Authorities to deal with the matter systematically, and it is much to be hoped that the new Authorities will at once take steps to set in force the powers which they possess under the Act and will draw up comprehensive schemes for meeting the needs of their districts. In this connection, it would be well if contiguous Authorities would confer as to their respective needs, and thus co-operate as far as possible in the establishment of joint schemes. We understand that in certain parts of the country—*e.g.*, the Authorities in the Eastern Counties and in Lancashire and Cheshire—steps of this character have been taken.

The improvements that have taken place as regards the position of the teachers in country schools are already producing a very serious dearth of elementary teachers in the metropolis and in the large towns; while the new Regulations which have been issued recently by the Board of Education, in respect to the training of pupil-teachers, will tend, unless decisive action is taken at once, to diminish the number of candidates who will enter the teaching profession. The abolition of the system whereby pupil-teachers are employed under the age of 16 (or in country districts 15) marks an important step in educational reform, and has been welcomed by educationalists throughout the country; but it is absolutely essential that the annual supply of elementary teachers should be increased rather than diminished, and that the Local Education Authorities should take steps immediately to provide for the continued education of those boys and girls who, under the existing system, would have commenced to earn money as pupil-teachers at the ages of 14 or 15. It may be that Local Education Authorities will find it necessary to re-cast their scholarship schemes and to devote a considerable sum to the establishment of scholarships which will enable candidates, who intend to enter the teaching profession, to continue their education for a further period of two years after attaining the age of 14.

* * * * *

Those Local Education Authorities who are chiefly concerned with distinctly urban work might with advantage investigate the results of the inquiry recently undertaken by Professor M. E. Sadler, M.A., of the University of Manchester, late Director of Special Inquiries to the Board of Education. The inquiry was instituted by the Sheffield Education Committee, who have embodied its details in a separate report, which is now under the consideration of a Special Committee. In order to facilitate such investigations, we publish, in Section III. (pp. 427-59), (1) a specially-abridged account of this report, preserving those points likely to be of most practical interest and service to Local Education Authorities; and (2) the proposals of the Derby Education Committee, which, so far as they have been elaborated, are in complete accord with Professor Sadler's report: for the accompanying illustrations we are indebted to the authorities of the various institutions. Professor Sadler's general suggestions, and his specific recommendations likewise, are very suggestive as to what should constitute a complete and organic scheme

of secondary and higher education in our large centres of population. His introductory considerations, which are unavoidably excluded from our account, are admittedly *ideal* in character. It is emphatically declared that a liberal but prudent expenditure on secondary and higher education is the best investment and an immediate task, and that an efficient system of the kind is "as indispensable a part of the equipment of a progressive city as are a first-rate water supply, a good tramway system, electric lighting and power, beautiful parks . . . and municipal buildings . . ." And with this it should be admitted, as being the result of actual and wide experience, that "a well-planned course of liberal secondary education" should be maintained to 16 years of age at least, and is the best preparation for technical training and business life.

* * * * * *

As regards Professor Sadler's suggestions and recommendations, these should be found to apply, in a large degree, to the circumstances of many large towns besides Sheffield, if stock be properly taken of the local educational provision. Among those which need, perhaps, particular emphasis at the present time are the following :—

(1) The establishment of first and second grade secondary schools for both boys and girls ;

(2) The annual inspection and examination, and the comprehensive inspection periodically, of all recognised private schools maintaining efficiency (the cost to be met chiefly by the Local Authorities), and their full participation in the Local Authorities' scholarship schemes ;

(3) The institution of a complete scholarship system, governed by careful regulations as to the standard and periods of competitions and examinations, poverty to be no barrier to any pupils showing promise of profiting by further education ;

(4) The co-ordination of all evening classes to ensure the easy passage of students from district or local classes to those at a central higher school and from thence to those at the technical side of a university college ;

(5) The provision of a secondary school course to *precede* the training for pupil-teacherships, and this course to be followed at 16 years of age by a two-years' course of half-time education at a Centre ;

(6) The close association of the day training college with the local university college (but the university or degree course not to

be unduly pressed), the former to have a specially-appointed head and a separate committee of management with representatives of contributing Local Education Authorities upon it ;

(7) The arrangement of conferences on educational matters between teachers in all types of schools.

* * * * *

The city of Manchester has been so much in the forefront in the equipment of its population with adequate educational facilities that we have published on pp. 460-77 an historical and instructive review of the position of affairs in that city. This account is accompanied by several illustrations of the splendid Municipal Schools of Technology and of Art, and the city is to be congratulated upon the efforts it has made so successfully. It should be remembered that Manchester was among the first Local Authorities who levied rates under the Technical Instruction Act of 1889, and that the city has consistently invested its funds in education in the belief that such a course will sustain the population in their industrial concerns. Not content, however, with an important position among the constituents of the Victoria University, it has obtained a Charter for a distinct University for itself. It is to be hoped that the higher and wider responsibilities thus undertaken will not tend to weaken, in other parts of the country, the establishment of a complete system of all forms of education ; while those who have regarded the dissolution of the federated Victoria University with some misgiving may be pardoned if they continue to await events. Meanwhile, we believe that, from the point of view of Manchester, the new University will justify the expectations of her people and provide a crowning edifice to that educational zeal to which we have referred.

* * * * *

We have pointed out from time to time the continual decreases of funds now entirely available for education under the Local Taxation (Customs and Excise) Act, 1890 ; there appears, however, to be an arrestment in this regard. According to the last annual report of the Local Government Board, just published, the total amount paid to Local Authorities in England and Wales, in respect of the year 1902-3, or available for actual utilisation during the current year, was £921,000, as against £896,000 for the year 1901-2—an advance of £25,000. This sum, when spread over the whole country, does not, of course, represent any material

additional assistance to individual localities (leading counties like Lancashire and the West Riding of Yorkshire receiving only £1,000 more each) ; but the increase, however slight, is, perhaps, sufficient to show Local Education Authorities that this source of endowment for higher education is more trustworthy than it has appeared lately to be.

* * * * *

The promoters of the Home Counties Nature-Study Exhibition, which has just been held in London, had several objects in view. First of all, they wished to carry the movement a step further, by differentiating the recently recognised methods of education from the justly appreciated scientific training which even now must still be called special. It should be sufficiently obvious that, unless this be done, "nature-study" will come to be merely a new name for an old thing, and already some have been led to believe that a kind of slipshod science teaching is what is being advocated. A second endeavour aimed at showing that, while a useful part of "nature-study" is the observation of animals and plants under control, from educational or economic motives, the ideal "nature-study" must be pursued out of doors. A third intention of the Committee was to render clear that the making of a collection in "nature-study" is by no means necessary, and that series of specimens, which are so valuable in zoology and botany, are only of use in particular connections—that is to say, when they serve as records of special work and permit of the identification of creatures found already, or to be seen—more especially in a given neighbourhood.

* * * * *

It must be said that on every side in the Exhibition (which, owing to the kindness of the Civil Service Commissioners and His Majesty's Office of Works, was held at Burlington Gardens) it was evident that the aims of the promoters had been very generally realised by the exhibitors and by the judges who made the awards. Incidentally, it was shown by the success of the Exhibition that next year's efforts may well be directed towards a further clearing up of general conceptions of "nature-study" over a wider area. A particular feature of the Exhibition were the educational conferences held on Saturday, 31st October, at which those actually engaged in teaching described their "nature-study" work. It was also recognised that those who have substituted the camera for the

gun, in the pursuit of our native mammals and birds, have done much for the promotion of "nature-study"; and such men as Mr. Richard Kearton, Mr. Lodge, and Mr. Pike were invited to give lectures upon their special subjects, and they very heartily responded. Similarly, the successful results obtained with the Urban-Duncan Bioscope, in recording prolonged observations upon living animals and plants, were demonstrated by Mr. Martin Duncan. It is hoped that we may be able to give a detailed account both of the Exhibition itself and of the interesting meetings to which we have alluded in the next number of "The Record," when the full report of the judges and the list of awards are published. It is suggested that a public prize distribution should be held in the middle of December in the theatre at Burlington Gardens. Particulars can be obtained from Mr. Wilfred Mark Webb, at 20, Hanover Square, W.

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The annual report of the Board of Education, issued in August last, contains, *inter alia*, some valuable statistics respecting the various branches of the movement with which the Agricultural Education Committee have from the first prominently identified themselves. The teaching of special subjects in the rural elementary schools has evidently made rapid progress since 1899, or soon after the inauguration of the Committee's programme. Cottage gardening is now taught to boys in 387 schools, or in exactly four times as many schools as in the year above-named, and the number of pupils earning grants (*i.e.*, receiving 20 or 40 hours' instruction) has risen from 1,350 to 4,359. The rapidity with which "household management" has been taken up is even greater, this compound subject being incorporated in a new Article (101 m) in the Code of 1900. For the first complete year grants were paid on over 7,000 pupils; this figure has now been doubled, the subject being taught in 153 school departments. Again, there has been a steady increase in laundry work since 1899, grants being paid on account of 28,400 girls. The special agricultural bye-law provided for in "The Robson Act" of 1899, of which we spoke in our last issue, has now been adopted by 988 Local Authorities.

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Following upon the issue in March, 1902, of the Parliamentary Return in regard to schools of science, to which we drew attention at the time, it is interesting to notice the present position of these

schools and also of secondary day schools, which are recognised by the present Regulations as schools under Divisions A and B respectively. Since the date named, the number of schools of science has increased by 30 and of scholars by 1,000. There are now 235 schools, three-fourths of which are carried on in connection with secondary schools and technical institutes—an ample evidence of the past activity of Local Municipal Authorities in the cause of secondary education—the schools attached to higher grade and board schools making up the remaining one-fourth. Of the 127 Division B schools, fully one-half are Welsh schools working under the provisions of the Welsh Intermediate Education Act; almost all the English schools are endowed schools. The total numbers of pupils in attendance are—in schools of science, or Division A schools, 28,000; taking science courses in Division B schools, 8,000; total, 36,000.

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Among the "General Reports on Higher Education," published by the Board of Education, is a very enlightening and useful "Report on the Teaching of Literary Subjects in some Secondary Schools for Boys" by Mr. J. W. Headlam, M.A. Many of the facts stated in this report, which is based on the experience gained in the inspection of over 70 schools mainly of the second and third grade type, are most distressing to read and serve as potent reminders of the warnings that have oft-times been given of the tendency of recent years to overdevelop science instruction at the expense of other branches of education. We feel that the revelations made by Mr. Headlam are such as to relieve us from making any apology for quoting freely from his report. In the first place, and as regards the general position, he says:—"In the majority of schools . . . the nature of the literary education, as to the subjects chosen, the methods of teaching and the proficiency attained, requires . . . most serious attention. . . . The Board have, during the last years, brought about a great improvement in the mathematical and scientific work. Among those schools which receive grants . . . one . . . finds a carefully graded and coherent course in these subjects; there is lavish expenditure of provision of apparatus for teachers, and generally the masters have a very adequate knowledge of the subjects they teach. All these qualities are too often absent in the literary work, which until recently has not . . . been subject to regular supervision. The different branches are not connected with one another;

"there is little attempt to organise a course which properly
 "differentiates the work of the Upper and Lower Forms; there is
 "no provision of such apparatus as may be necessary; and too
 "often the masters are required to teach subjects of which they
 "have little knowledge."

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"In many of the schools visited no attempt is now made to give
 "a classical education. . . . It is becoming increasingly
 "difficult for a professional man . . . to procure in the
 "grammar school of his district an education which will prepare
 ". . . for a professional career. Greek has practically
 "disappeared from nearly all these schools. In many of the
 "endowed schools an extra fee is charged to those who learn it—
 "this at the same time that large grants are made by the Board
 "of Education and the Local Authorities for those who
 "devote their time to the study of the natural sciences.
 "In many schools Latin is also disappearing . . . German,
 "if taught at all, is reserved for the upper part of the
 "school and only learnt by a few boys. The chief place
 "in language study is taken by French," but there is great
 "difficulty in obtaining competent masters. "In English subjects
 ". . . the teaching has not yet reached that stage at which
 "criticism begins to be useful or possible. The very first
 "elements of good work are absent. The instruction is based
 "exclusively on text books. The masters have no knowledge on
 "the subject except what they gain from the book which the boys
 "use. . . . No history but English history is taught, although
 "an understanding of English history is impossible without some
 "knowledge of the history of the Continent. The period chosen
 "for study is determined not by the previous career of the boys
 "but by the syllabus of an examination. . . . In the same
 "way English grammar is taught entirely without reference to
 "the other language work. . . ."

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The question of school libraries, too, is immensely important,
 for "to teach history, language or literature without books
 "is as absurd as to teach science without apparatus.
 "The latter course is now forbidden; the former is almost
 "universal. In a large number of schools there are no
 "libraries at all. In a considerable number there is a

"collection of story-books for the amusement of the boys. 'In scarcely a single school has an attempt been made to form a collection of books which the masters and boys can use in the illustration of school work.'" It is needless to quote further, and the truth of Mr. Headlam's concluding remark upon such a position of affairs is only too apparent, that it "must have a most harmful influence on the intellect and character of the nation." The duty before Local Authorities to endeavour to speedily remedy these deficiencies is equally clear, if alone in the interests of the many scholars assisted by their subsidies to attend these schools. We hope, therefore, that due regard will be paid to these facts in connection with the special inquiries into the condition of the secondary schools now proceeding in different parts of the country.

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In the prosecution of such inquiries, through their Higher Education Committees, the Local Education Authorities are discovering how greatly inadequate, to even bare needs, are the existing facilities for secondary education in their areas; and this with all the excellent work accomplished in many counties under the lately-repealed Technical Instruction Acts. A clear case in point is that of Staffordshire—a county where the claims of secondary education have certainly not been disregarded hitherto. The results of a preliminary inquiry in that county are published on pp. 507-10, and these show that not only is the number of both boys and girls attending the secondary schools considerably below the average declared requisite by expert authorities and obtaining in other areas but also that there are gaps completely destitute of the right type of school. Again, in Herefordshire, similar action has revealed the facts that (1) there is an unsatisfied demand for secondary education in all the six chief districts in the county, (2) there are no boys' secondary schools which can be considered adequate or satisfactory in their present condition. It is estimated that an initial sum of about £2,450 from county funds, apart from local assistance, will be required to carry out the improvements. We shall probably be able to revert, later on, to the positions in these two, as well as in other, counties, when the proposals of their Higher Education Committees take more definite shape. Meanwhile, it will suffice to point out that a great task still lies before all Local Education Authorities in the direction of more effectively organising secondary education.

The number of technical institutes under the direct control of the London County Council has been increased this session by the opening of the L.C.C. Paddington Technical Institute at Saltram Crescent. This institute is, in the main, organised on the lines of a polytechnic, and advanced instruction will be given in chemistry, physics and engineering, provision being also made for art, domestic economy and other subjects. The work of the Westbourne Park Institute and of the Queen's Park Technical Institute has been transferred to the new Paddington School, which has been placed under the direction of Dr. Ryan, formerly Principal of the Woolwich Polytechnic. It is anticipated that the new institute will be an important centre for instruction in mechanical engineering, as a large number of those who are likely to be students are engaged in the neighbouring railway works. An additional institute under the direct management of the London County Council will be opened in January, at Ferndale Road, Brixton. This institute will provide a centre for instruction in all branches of the building trades. It will be under the direction of Mr. H. W. Richards, who was formerly head of the Building Trades Department of the Northern Polytechnic.

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The work of the London Day Training College, which is carried on by the London County Council in conjunction with the University of London, shows a considerable increase this session. As many as 111 new students holding King's Scholarships have entered this year with a view to taking a three years' course. The majority of the students hold scholarships from the London County Council, which will provide them with free instruction at King's College, University College or Bedford College. All the students have passed the London matriculation examination, and on the result of that examination have been awarded King's Scholarships by the Board of Education, these scholarships carrying with them payment of the fee for professional instruction at the Training College, together with a maintenance grant of £25 for men and £20 for women. The total number of students who are being trained as elementary teachers at this College is now 169. An interesting feature in connection with the College is that a post-graduate course for students who intend to become teachers in secondary schools is carried on in the same building as the course for elementary students. Students who enter the post-graduate department of the College are required to take a year's course in preparation for the teacher's diploma

examination of the University of London. The total number of students in this department is now 23. The College is at present conducted in temporary premises, but arrangements have been made for a permanent building to be erected on a site which has been obtained from the County Council in Southampton Row. The new Training College will be erected side by side with the new Central School of Arts and Crafts, and the two institutions will form a continuous building, with an extensive frontage.

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With regard to art teaching in London, the London County Council have recently adopted the policy of taking over some of the schools of art which have been working for several years past in connection with the Board of Education. The first school which was so taken over by the Council was the Clapham School of Art in Vernon Road, High Street, Clapham. The Council have recently taken over the Hammersmith School of Art, which will probably, in due course, be incorporated in a new technical institute to be erected in Hammersmith; they have also decided to be responsible for the conduct of the Camden School of Art, which will probably, in the future, work in close connection with the Northern Polytechnic, Holloway. It is anticipated that a considerable stimulus will be given to art teaching in the metropolis by the carrying out of a policy under which the Local Education Authority are directly responsible for the conduct of several of the local art schools.

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The chief subject for discussion in the Educational Science Section of the British Association this year was curricula in various types of schools. The papers which formed the basis of the discussion were read by Professor Adams, Professor Sadler, Professor Armstrong, Miss Burstall, Mr. Paton and Mr. Fletcher. In order to focus the discussion there were certain specific resolutions which were formally proposed by the readers of the papers. In these resolutions protests were made against early specialisation, the too early commencement of the formal study of Greek and Latin—especially in preparatory schools, the neglect of rational methods of teaching in the Lower Forms of schools and the similarity of curricula and general treatment in the education of girls and boys. The Committee, appointed at a previous meeting of the British Association to consider the teaching of

botany, presented an interim report which met with a very favourable reception. The teaching of geography, the discussion on which was opened by Mr. Mackinder, received a considerable amount of attention, and a report on the influence of the universities in affecting injuriously the teaching in secondary schools by means of the entrance scholarship system gave rise to an animated discussion.

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In our last issue we published a *preliminary* list of the appointments of the chief educational officials made under the Education Act, 1902. We now give, on pp. 510-13, a *supplementary* list of the additional officials appointed subsequently. It would appear that, up to the present time, the particulars we have been able to compile embrace 47 of the 48 English counties (of course, excluding London), 63 of the 66 English county boroughs and 4 of the 13 Welsh counties. We would again ask the various officials concerned to be good enough to send to this office an early notification of any revisions required or of any new appointments made in their respective localities, so that eventually the list may appear absolutely complete.

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An important Conference in the interests of the higher education of girls was held on Saturday, 24th October, at the Haberdashers' Hall, London, under the auspices of the Incorporated Association of Head-Mistresses and of the presidency of Mrs. Sophie Bryant, D.Sc., the President of the Association. The invitation secured a wide response, the attendance including, in addition to the head-mistresses of over 60 public secondary schools for girls, women members of the Education Committees of 19 administrative counties, 22 county boroughs and 30 Minor Local Authorities. It is well that at the outset of the new and enlarged work in the domain of higher education made possible by the Education Act, 1902, the Local Authorities should obtain clear views from those who know intimately what are the actual requirements of girls in respect of secondary and higher education and how these requirements may best be met. In this connection, the important words of Professor M. E. Sadler, M.A., given in one of his series of lectures now proceeding at the University of Manchester, need to be fully recognised, namely—that "Local

"Authorities should endeavour to make themselves thoroughly representative of the experience of women; it would be a disastrous thing if women's guidance and knowledge were lacking at this critical time of readjustment." It appears to us that, if this was one of the objects in convening the Conference, there is every probability of its achievement. The opening papers as well as the discussions seem to have dealt in a very practical manner with the various problems affecting the education of girls. Limitations of space preclude us from referring in detail here to the proceedings of the Conference, but we understand that a full and official report will be published by the Head-Mistresses' Association and may be obtained from their offices, 92, Victoria Street, Westminster, S.W., at the price of 1s. 3d. post free. Among the general and particular questions discussed were the relation of an Education Committee to secondary schools, scholarships and technical education for girls and women, the true cost of secondary education for girls, the training of pupil-teachers in primary schools, the principles of curricula in different types of girls' schools. We hope that the desiderata affecting these and other questions propounded at the Conference will not be overlooked among the many pressing needs which claim the attention of Local Education Authorities throughout the country.

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The second annual Congress of representatives of Technical Instruction Committees, held in Belfast during September, may be said to mark an epoch in the initial stages of the technical education movement in Ireland. At a similar Congress held last year at Cork it was suggested that a permanent Association of these Committees should be formed. With this view, invitations to the second Congress were sent to 70 Technical Instruction Committees throughout the country, and of these 45 intimated willingness to join the Association and send delegates, the majority of the refusals being from small centres which would be affected by the question of the expense of a delegation; but it may be stated, in passing, that the Board of Agriculture and Technical Instruction have given a favourable decision regarding the payment, out of local funds, of the expenses of delegates attending meetings of the Association. Before the close of the Congress it was decided that the Association should be called "The Irish Technical Association," and a standing committee was formed to elect a president and to draft rules. A number of practical questions bearing upon

the local and central organisation of technical education in Ireland was discussed during the two days' session, and upon most of them resolutions were carried in order to give tangible expression to the views of the Association.

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The first and chief of these resolutions dealt with the vexed question of the Equivalent Grant, and urged that largely-increased grants from the Treasury should be made available for technical education ; and a representative deputation was appointed to lay the case before the Chief Secretary. Among the other decisions made by the Congress were:—that suitable co-ordination should exist between secondary schools and technical institutes, the formation of day technical schools being generally approved ; that increased grants should be given by the National Board for evening continuation schools, and that the Board should so modify their scheme as to allow of its easy adoption by Local Authorities ; and that one or more provincial schools should be established for the training of teachers in domestic economy. There is evidently a very wide field for useful work before the Irish Technical Association, as well as the Irish Association of Principals of Technical Schools (which will hold its second annual meeting at Newry during the Christmas vacation) ; and with proper guidance there can be no doubt that the influence of these bodies will be as fruitful as that of the voluntary organisations on this side upon which they have been modelled.



MANCHESTER SCHOOL OF TECHNOLOGY, MANCHESTER (GENERAL VIEW). (See page 459.)

II.—THE TRAINING OF TEACHERS.

A GENERAL REVIEW OF THE PROBLEM.

Of all the duties which devolve upon the Local Education Authorities under the Education Act, 1902, no duty is more important and more urgent than that of making suitable provision for the training of teachers. Before the passing of the Act to which we have referred matters were in a somewhat anomalous position. A Teachers' Register had been formed which laid it down as an essential condition for the registration of secondary teachers that they should have been through a period of training, but no machinery was set up which enabled such training to be given. Similarly, the Authorities which dealt with elementary education were insisting more and more upon their teachers being trained; but they themselves had no statutory authority to provide such training. The inadequacy of the existing training colleges to meet the growing demands of elementary education became every year more apparent, while the upholders of the training of secondary teachers were constantly faced with the difficulty of realising their ideas in practice. The only public bodies which were in any way able to grapple with this double difficulty were the Technical Instruction Committees of County and County Borough Councils and other Local Authorities under the Technical Instruction Acts. But their limited funds were so largely allocated to meet other pressing needs, and, moreover, their powers under the last-named Acts were so circumscribed, that it was impossible for them to do anything more than touch the fringe of the problem.

THE PRESENT OPPORTUNITY.

Fortunately for the future of education in England and Wales, the new Education Act has been passed, and, with one stroke, the restrictions that had hampered the action of School Boards and the municipal authorities have been swept away. In every part of the country there have now been set up Authorities which are able, without fear of auditorial restrictions, to establish and carry through a complete system of training for all grades of teachers. The debates that took place in Parliament, when the Bill was under discussion, made it clear that the country was alive to the

urgent need that existed, and, as a result, a special clause was introduced into the Bill stating specifically that "the power to supply or aid the supply of education other than elementary includes a power to train teachers. . . ." (Ed. Act, Section 22 [3].)

Since the passing of the Act, a very important Memorandum has been issued by the Board of Education (Cd. 1,666), in which great stress is laid upon the vital necessity of providing for the training of teachers. This Memorandum is issued as an introduction to the "Revised Regulations for the Training of Pupil Teachers and Students in Training Colleges," and, after explaining the reforms that will be introduced into the system, it proceeds as follows:—

"In commending these new Regulations to the attention of Local Authorities and Managers, the Board of Education desire to emphasise as strongly as possible the very great importance of taking such steps as will lead in course of time to the continuous provision, year by year, of a well-educated teaching staff for elementary schools. . . . Though the initial expense of providing sound general education for all young persons who are intended to become teachers is doubtless heavy, it must be remembered that such expenditure is an essential condition to the production of adequate results from all the rest of the local or central expenditure on the schools, and is, therefore, the most economical of all forms of expenditure." (Cd. 1,666, p. 10.)

Parliament and the Board of Education, then, have alike emphasised the need of expenditure on the training of teachers. It now remains for the Local Education Authorities in all parts of the country to respond to the call.

PUBLIC ELEMENTARY EDUCATION.

(1) The Increasing Need for Trained Teachers.

When the system of compulsory elementary education was introduced, no provision was made for the compulsory training of teachers. It was compulsory for the School Boards to provide teachers, but the supply of trained teachers was left to depend upon voluntary effort. Consequently, during the past 30 years, there has been an increasing difficulty in securing a sufficient number of trained assistants. Many Boards contented themselves with appointing a considerable number of untrained persons to serve on the staff of their schools. Those Authorities which

decided to appoint none but trained teachers found themselves unable, owing to dearth of candidates, to carry out their policy fully. The School Board for London, for instance, had 937 vacancies to fill in 1902. Notwithstanding their determination to appoint none but trained teachers, they were compelled to appoint 46 untrained teachers on their staff, and it is understood that at the end of the year there were a large number of vacancies unfilled. Taking the country as a whole, out of a total of about 68,000 certificated teachers only about 39,000, or 57 per cent., are trained, while 29,000, or 43 per cent., are untrained. It is true that both classes stand on an equality, as far as qualification under the Board of Education's Regulations is concerned; but all the most enlightened local bodies are becoming more and more alive to the importance of securing trained teachers in their service, and the recent report of His Majesty's Chief Inspector of Training Colleges emphasises the great disadvantages under which acting teachers, who have not been trained, have to work for their certificates.

But not only are there only 57 per cent. of the total number of certificated teachers who are trained; the certificated teachers themselves, both trained and untrained, form only 55 per cent. of the total number of adult teachers. The remainder consist of (1) assistants and provisional assistants, who have not obtained their certificates, and of (2) the "additional teachers" appointed under Article 68 of the Code, who have, owing to the dearth of teachers, been increasing rapidly of late years, so that they now number over 17,000, or about 14 per cent. of the adult teachers. These figures take no account of the pupil teachers and probationers, who number about 32,000.

(2) The Need for Training Intensified.

The normal growth of the elementary education system has thus, in itself, been tending to increase the difficulties incidental to the supply of teachers. The Education Act of last year has further tended to swell the demand for skilled teachers, by bringing up the staff of voluntary schools more or less to the level of board schools. But the problem has been rendered still more acute by the recent developments which have taken place in the Regulations of the Board of Education. The principal changes are (1) the abolition, as from August, 1905, of all pupil-teachers under the age of 16 (or 15 in rural districts), and (2) the intimation that, in future, teachers appointed under Article 68 may be required, as a condition of recognition, to take steps to secure training. All who are interested in the progress of education give the heartiest welcome to these reforms, and commend the zeal for efficiency which they

display on the part of the Board of Education. But there is no doubt that they still further intensify the urgency of the question of the adequate supply of trained teachers; and it is imperative that the new Local Education Authorities should at once take steps to co-operate with the Board of Education and meet the new state of affairs by energetic and concerted action.

(3) Additional Training Colleges must be Established.

It cannot be questioned that, if the educational efficiency of our elementary school system is to be maintained, a considerable increase in the provision for training must be made throughout the country. The annual output of our existing training colleges is about 2,800 teachers: the total number of vacancies for new certificated teachers for the year 1902 has been reckoned as amounting to about 5,600, or double the number of trained teachers available. The levelling-up of voluntary schools under the new Act will, it is calculated, increase the annual number of vacancies by 2,000, and the operation of the new "Regulations for the Instruction and Training of Pupil Teachers" will probably, in time, add another 1,000 to the annual demand. Thus it may be estimated that, each year, there will be required, for the service of the elementary schools throughout the country, some 6,000 more certificated teachers than can be supplied by the existing training colleges. How are these teachers to be provided? Clearly, new training colleges must be established. Every important Local Education Authority should at once prepare a scheme for meeting the demand for teachers by the provision either of residential or day training colleges. The lesser Education Authorities should co-operate, whenever possible, with their more important neighbours by paying the fees of candidates from their district or by contributing to the establishment of colleges or hostels. Full advantage should be taken of the new Regulations which have recently been introduced by the Board of Education for the establishment of hostels. These institutions may, it is hoped, enable intending teachers to have the advantage of a common social life, while at the same time they mix with other students in the university college to which the day training college is attached.

(4) The Training College of the Future.

When once the facts are fully realised, we may begin to look for the inauguration of new training colleges, whether established by individual counties and county boroughs or erected and maintained by the joint action of neighbouring Authorities, as

foreshadowed in Sections 20 and 23 (2) of the Education Act of 1902. It is important, therefore, that the new Local Education Authorities should carefully consider what form of training college is best adapted to the needs of their area. There seems to be a growing feeling that young men and young women who are destined to become teachers should be educated along with other students who are going into other walks of life. The new Regulations of the Board of Education for the training of pupil-teachers lay stress upon the importance of associating pupil-teachers with the ordinary life of the secondary school, and the success which has attended the recent development of day training colleges is, to a large extent, due to the fact that the students, during their course of training, are not set apart in a separate establishment, but are incorporated among the ordinary undergraduate students attending university colleges. The exigencies of professional training will always render necessary a certain amount of specialised instruction; but it can hardly be doubted that, if we are to give our future teachers the full benefit of a liberal education, the process of segregation must be minimised, and the students must be merged, as far as possible, in the general educational life of the community. The teacher should always be led to feel that knowledge is boundless, and that, as soon as he ceases to be a learner, he ceases to be a good teacher. Nothing is so effectual an antidote to intellectual self-satisfaction as mixing with a variety of fellow-students who are pursuing other paths of knowledge and are destined for other careers.

(5) Mr. Sargant's Scheme for South African Teachers.

One of the most suggestive schemes for the training of teachers that has yet been put forward is that which was sketched by Mr. E. B. Sargant, Director of Education for the Transvaal and Orange River Colony, in an address delivered at a Convention of Natal Teachers, at Durban, on the 2nd July, 1903. The proposal made by Mr. Sargant is somewhat as follows. Up to the age of 17, intending teachers should go through the usual course of training in the high schools of the Colonies, the cost of education being covered by bursaries. On passing the Matriculation Examination of the University of the Cape of Good Hope, they should, if not more than 17 years of age, be admitted to the normal school for a year's training, the cost of training being again covered by bursaries. The course of training during this year would be entirely professional, and those students who passed through the course successfully would receive third-class certificates and would proceed to work

in the schools as assistant teachers. While engaged as third-class teachers, they would be required to prepare for the Intermediate Examination in Arts of the University, and after a period of at least four years' service, if they passed the Intermediate Examination, they would be eligible for election to bursaries, which would take them to a university for a period of two years and enable them to graduate as Bachelors of Arts. Only those teachers would be elected to these bursaries who were reported by the inspectors to be specially good and earnest teachers and of the highest moral character. After taking their degrees at the university, these selected teachers would be re-admitted to the normal school for a further period of one year's professional training, during which they would be required to teach the younger students as well as to undergo their own course of training. On successfully completing this second professional course, they would receive second-class certificates, and would then be eligible to return to the schools as head-masters and head-mistresses for a period of at least six years. They would then be eligible to compete for travelling scholarships, which would be awarded on the submission of an original thesis on some professional subject. Those who were elected to these scholarships would be required to travel for a year in a foreign country or foreign countries in order further to study the subject of their thesis, and on their return would be attached for a year to the staff of the normal school, where, in addition to ordinary teaching, they would be required to deliver a course of lectures on the result of their thesis. If these duties were satisfactorily performed, they would receive the first-class certificate and would be eligible for inspectorships of schools and higher offices in the Education Department of the Colony. It is hoped that, in due course, each British Colony will establish a federal training college and that in England a central institution for educational research will be established. The second year of professional training might then be taken at the Federal Colonial Training College and the third year at the Imperial Research Institution at home.

This interesting scheme may eventually require some modifications in detail before it is actually realised, but it contains many valuable suggestions which might well be utilised by our Authorities at home; and it has the supreme merit of holding up before the teacher, as an ideal for training, a course which, so far from being completed in a year or two at college, extends over a whole life-time and makes the terms 'learner' and 'teacher' synonymous.

SECONDARY EDUCATION.

(1) The Training of Teachers is Urgent and will be Indispensable.

Thus far we have been dealing mainly with the training of teachers for elementary schools. The problem of providing for the training of teachers for secondary schools is equally urgent; and it is indeed fortunate that the issue of the Revised Regulations for the Registration of Teachers coincides with the creation of Authorities which have statutory power to provide the machinery by which alone those Regulations can be made operative. If we turn to these Revised Regulations (which were published in full in the July number of "The Record," pp. 365-375), we find that, except in the case of teachers who have been engaged in teaching in recognised secondary schools for three years prior to March, 1906, practically all persons who desire to be placed on Column B of the Register as assistant-teachers in secondary schools must in the future have undergone a course of training. Those who are entering the profession of secondary school teaching are as yet hardly alive to the importance of this fact—at any rate in the case of men; but before long it will be realised by both young men and young women who propose to become teachers that it will be necessary for their professional *status* that they should be placed on the Register of Teachers. The Central Authority and the Local Authorities will soon expect candidates for appointments in secondary schools to be on Column B of the Register. Already the Board of Education are introducing into some of their Schemes a clause to the effect that head-teachers must be appointed from among those whose names are on the Register, and Local Education Authorities, in advertising vacant posts, are beginning to make it a practice to specify that applicants should be on Column B of the Register.

It may be taken for granted, therefore, that, in the course of a few years, the necessity of qualifying for admission to Column B will become generally recognised, and, in order to qualify for admission, candidates must go through a course of professional training. This course of training must, as a rule, extend over one year (students who have taken a four years' University Honours Course being allowed to take a shorter period of two terms); and at the end of the course students must obtain one of the diplomas or certificates in the theory and practice of education awarded by a university or by a recognised professional body. The student who is preparing to become a secondary teacher will have this advantage over the

intending elementary teacher, in that he will be able to concentrate the whole of his energies on his professional studies during his year of post-graduate work, whereas the elementary teacher is obliged to spread his professional training over his course of two or three years, and divide his attention between his academic and his professional studies. The secondary teacher must have taken his degree (or the equivalent of a degree) before he begins to train; the elementary teacher is pursuing his general education at the same time as he is being trained to teach. There is also this further difference—that the secondary teacher must have spent at least one year on probation as a teacher at a recognised secondary school before he can be placed upon the Register; whereas the elementary teacher becomes a certificated teacher as soon as he has successfully passed the examination which closes his course of training.

(2) Methods for the Provision of Training for Secondary Teachers.

It is evident that the training of secondary teachers is not intended to be a perfunctory matter, which can be dealt with in an off-hand way. It is to be quite as searching as, in fact more searching than, the training of elementary teachers; and, as in a year or two there is likely to be an enormous increase in the demand for it, the Local Education Authorities must apply themselves in earnest to meet the situation. The training, it must be observed, may be taken in two ways. Either (1) the student may attend for his or her whole time at a training college, attending the lectures given by the staff of the college and carrying on his practical work in various neighbouring schools under the immediate supervision of the normal master or normal mistress of the college. Or (2) the student may be attached to the staff of a particular school and gain all his or her practical experience in that school "under supervision," *i.e.*, in most cases probably, under the direction of the head-master or head-mistress; provision would be made for such student to attend the lectures on education given at a neighbouring training college, but otherwise he or she would not be under the immediate direction of the training college staff. Students who adopt the former method, *i.e.*, spend a year at a training college, will be required to pass a university (or equivalent) examination in both the theory and practice of education; students who adopt the latter method will be required to pass an "approved" examination in the theory of teaching, but will not be required to pass an examination in the practice of teaching, other than producing evidence of their ability to teach.

(3) Practical Proposals.

The former course may be regarded as giving the more complete training; but it will be more expensive to the students and it will involve more difficulty as regards arranging for practice and criticism lessons in the schools: so that in all probability the "student-teacher" system will, at any rate in the commencement, be the more generally adopted. Both systems, however, require that, under each important Education Authority, there should be competent professors of education, or lecturers on education, who will deliver, at convenient centres, courses on the theory of education. It is desirable that, even where the students attending these lectures are "student-teachers," attached to some secondary school in the district, the professor or lecturer should be able to exercise some oversight in regard to the practical work of the students, and should, therefore, be able to visit them in their schools. In the case of the other class of students, referred to above, the professor or lecturer will be responsible for the whole of the students' practical work as well as their theoretical work. It is, therefore, essential that there should be (a) adequate training college accommodation and staff, (b) an adequate supply of schools to which the students can go for practice-lessons. There is no reason why a training college for secondary teachers should not be carried on in conjunction with a training college for elementary teachers, as is done in the new London Day Training College under the London County Council and the University of London. Such an arrangement necessitates an increase of staff, and demands the full services of the most highly-qualified staff that can be obtained; but it enables an economy to be effected in buildings and organisation, and it has the great merit of emphasising the underlying unity of the two branches of the profession. The question of securing sufficient practising schools is, in some ways, a more difficult problem, as, for the most part, secondary schools are only partially under the control of the Local Education Authorities, and the supply of such schools is at present inadequate to the needs of the population. But there ought not to be much difficulty in such arrangements being made that, in consideration of grants made to the schools by the Local Education Authorities, the schools would give facilities for a certain number of students to visit their schools for practice. In Article 91 of the Elementary School Code it is provided that, in the case of public elementary schools, "on request from the authorities of a training college, students from the college must be allowed to attend the school for the purpose of practical instruction in teaching on such conditions as may be approved by the Board." There is no reason why Local

Education Authorities, in return for annual maintenance grants, should not make some similar condition in secondary schools. Elementary schools have found that they have in no way suffered from their doors being opened to the training college students; so, too, it may be hoped that secondary schools will find that in the long run they will benefit by lending their co-operation to the promotion of a movement on which the efficiency and the welfare of the profession ultimately depend.

CONCLUSION.

The above remarks have dealt with only the more general aspects of the question. Nothing has been said as to the training of special teachers for special subjects. It has been thought better, in a brief survey, such as the present, to emphasise only the more salient points.

The movement for the training of teachers is probably the most pressing of all the educational movements of the present time. The success of the work of the new Local Education Authorities will depend, to a large extent, on the way in which they grapple with the question. It is to be hoped that they will recognise the need for immediate action and co-operate in the promotion of schemes which will be adequate to meet the requirements of the country.



THE ROYAL GRAMMAR SCHOOL, SHEFFIELD. (See pages 430 and 436-9.)

III.—HIGHER EDUCATION IN LARGE INDUSTRIAL CENTRES.

(A) SHEFFIELD.

PROFESSOR SADLER'S INQUIRY AND REPORT.*

(1) THE AIMS OF THE SCHEME.

In framing a plan for the improvement of the higher and secondary education of the city, it seems desirable—

(a) To link together the various schools and other institutions in such a way as to prevent waste of effort, and to make easy passage for pupils of ability from one stage of education to another ;

(b) To secure for all the boys and girls . . . who have the ability to profit by a good education, the best possible chance for the development of their powers, and thus to offer, to all who can profit by them, intellectual opportunities not inferior to those provided in other great cities ;

(c) To keep steadily in mind the practical needs of the industrial and commercial life of the community, without in any way disregarding or sacrificing the interests of those who are fitted to succeed in professional callings, and who consequently require a longer and somewhat different course of secondary education ;

(d) To aim at quality rather than quantity, to lay stress on the need for having first-rate teaching, without which costly school buildings and equipment are money almost thrown away, and to avoid doing children of mediocre ability the cruel kindness of encouraging them to enter on a course of education designed to prepare them for professions in which they have not the capital or the intellectual capacity to succeed ;

(e) To think of the various parts of the educational system of the city as forming one whole, and thus to avoid any method of organisation which would sacrifice the true interests of primary education to the supposed interests of secondary, or the true interests of secondary education to the supposed interests of

* City of Sheffield Education Committee: Report on Secondary and Higher Education, by Michael E. Sadler, M.A., LL.D., Professor of the History and Administration of Education in the Victoria University of Manchester (London: Eyre and Spottiswoode, price 1s.). See Editorial Notes, pp. 400-2.

primary, or which would deprive the community of the valuable help of efficient private enterprise in educational matters ;

(f) . . . To refrain from any proposal involving unnecessary expenditure, and, in submitting an outline of what it is desirable ultimately to accomplish, to indicate those parts of the general plan with which it would be prudent to begin.*

(2) EXISTING EDUCATIONAL PROVISION.

The educational system of the city of Sheffield may be sketched in a few paragraphs :—

Elementary Schools.—At the base of the pyramid lies the work of the elementary schools. Their success depends in great measure on the labours of the teachers being appreciated and seconded by the parents of the children. Home influences and home discipline are as necessary as ever to the educational welfare of boys and girls. . . . The public elementary schools provide almost, but not quite, all of the education which in a diagram might be represented by the lowest layers of the pyramid. A small part of this education, however, is furnished by private schools or by the kindergarten and preparatory departments of secondary schools.

Secondary Schools.—THEIR CURRICULA.—The age of twelve years best marks the line of division between elementary and secondary education. Elementary school pupils who are destined to receive a secondary education should be transferred not later than at the age of twelve from the elementary to the secondary school. The course of study at the secondary school should vary (a) in subject matter, and in length of duration, according to the type of occupation for which the scholar wishes to be prepared, and (b) in intensity of effort according to the sex of the pupil. The minimum course at a secondary school should extend over the four years from twelve to 16 years of age. But for the professions and the higher posts in business, the course should extend to 17, 18 or even 19. There are three main types of secondary school curriculum. All should lay great stress on cultivating the power of expression in the mother tongue. All should endeavour to develop the abilities of the pupils by practical construction and by manual work as well as by purely linguistic or abstract mathematical studies. But no one boy can attempt to do everything. Smattering is mischievous. Better

* The population of the City of Sheffield is estimated to be 426,686. The average annual increase for the five years prior to the extension of the city was 5,210. The gross produce of a penny rate is at present about £6,700.

do a few things well than much badly. And the aptitudes of different children differ as greatly as do the practical needs of different occupations. Therefore, the curricula of secondary schools fall into three main types—each with its variant for boys or girls respectively, though one of the three types is hardly used for girls at all. These types are (i) that in which mathematics and physical science predominate; (ii) that in which (with due provision for mathematical teaching) the linguistic discipline predominates, living languages (or one living and one ancient language) being taken as the chief, though of course not the only, vehicles of instruction; and (iii) that in which the linguistic discipline still forms the backbone of this course of training, but is imparted for the most part through Latin and Greek, though with some regard to one modern foreign language, as well as to other subjects like mathematics. In the case of boys (though this is due to historical reasons rather than to the nature of the case) the three types of curricula outlined above are generally found in courses of different duration. The first-named type is usually provided in a compact four-years' course, fitted in between the ages of twelve and 16. The second type usually, though not always, begins at ten years of age or even earlier and extends itself to about 17. The third type, in its highest perfection, occupies an even longer period. It begins (though not necessarily or always) at ten years of age or even earlier, and runs on to 18 or 19. In the case of girls, the forms of secondary school curricula are more fluid and variable than in the case of those provided for boys. But, nevertheless, with due regard to the need for giving girls a lighter burden of work during the critical years of their physical growth, the types of their secondary school curricula do approximate to those provided for boys. The first type, less severely but still markedly mathematical and scientific, tends to be a four-years' course. The second (by far the most usual) is a longer course, beginning at ten years of age or earlier and extending to 17 or later. The third (or fully classical) type is very rare in the case of girls, and, indeed, hardly has a separate existence, but is found here and there as a small sub-division of a larger school. It carries on its work till the girls are 18 or 19 years of age.

These various types, however, are often blended or combined under the roof of a single school and under the care of a single head-master. In many cases their outlines are blurred and their aims have become indistinct. But efficiency in school work flourishes when the intellectual aims are clear, and when teachers, boys and parents know what is being aimed at and what standard

should year by year be reached. What is now taking place all over England is a closer consideration of the problems of secondary school curricula, a clearing up of educational aims and a more precise definition of different courses of instruction; but this will be found to be in no way incompatible with the combination of two, or even three, types of curricula in one school.

One aspect of the problem presents special difficulty but is of salient importance. Due facilities must be given for the transference of promising pupils from the elementary to the secondary schools. This must be accomplished without impairing the thoroughness and value of the curriculum of the secondary school. The majority of pupils enter the secondary schools at ten years of age. The promising pupils from elementary schools ought not to be transferred to the secondary school later than at twelve years of age. But this means that in French or Latin they may be two years behind some of their contemporaries in the secondary school. This difficulty can be met either by providing special instruction for such pupils on their admission to the secondary school, or by postponing the commencement of Latin in the secondary school till the pupils are twelve years of age. Ultimately, I believe, we shall, in most cases, incline to the second solution. But, at present, the standard of classical attainment of the most advanced pupils in our highest secondary schools is so high (when compared with their knowledge of English history, and literature and of geography and physical science, so abnormally high) that a boy who began Latin at twelve would not be able to compete successfully for a classical entrance scholarship at a great public school with boys who began the special study of Latin and Greek at a much earlier age. By 17 or 18 years of age, he might catch them up in classical attainment, even though he began classics two or more years after them.

THE LOCAL POSITION.—In Sheffield the chief secondary schools for boys are the Royal Grammar School and the Wesley College. * At the former, nearly all the boys are day scholars; at the latter, boarders form rather more than one-sixth of the whole. Preparatory departments are attached to both institutions, and there is one other private preparatory school for boys only. . . .

In both the Grammar School and the Wesley College, linguistic discipline is the backbone of the curriculum, though at each school some science is taught through the greater part of the school . . . and a good deal of mathematics. But the Grammar School, above the Middle Forms, branches into the two different curricula—one which is predominantly mathematical or scientific

* Illustrations of these institutions will be found on pp. 426 and 438.

and one which is mainly classical. At the Wesley College, in the Middle School one curriculum is taken practically by all boys ; in the Upper School, choice is made between Latin and practical chemistry and between Greek and German. It should be added that many boys are sent away from Sheffield to boarding schools at a distance.

For girls, the chief secondary school in Sheffield is the Girls' High School.* It provides a curriculum which is nearest to the second of the three types named above, alike in the subject-matter of the studies and in the normal length of its duration. But facilities are wisely given for special studies, involving deflection from the regular curriculum for older girls in the higher part of the school. There are also in the city a considerable number of private secondary schools for girls. . . . These schools have curricula of a linguistic type, and for the most part, though by no means wholly, are confined to pupils under 16 years of age.

Training of Pupil-Teachers.—In a special position stands the Pupil-Teachers' Centre, which provides for the instruction of pupil-teachers in Council and voluntary schools. Its aim is to secure for its pupils admission to a training college, and to enable them to reach a standard of general attainment which will qualify them to profit by a normal course. The majority of the pupils are girls. Their ages range from about 15 upwards. The classes are held in the evening as well as in the day time, in order to meet the needs of the pupils who are working as pupil-teachers in the elementary schools. . . .

University College.—Stepping one stage higher in the educational provision of the city, we reach the University College, comprising the departments of arts and science, medicine and technology. The Technical School Department includes the Engineering Department, the Metallurgical Department and the Mining Department, together with a Technical School section. The University College has also a Day Training College Department for students who are preparing themselves for the teaching profession. There is also, in the Mining Department of the College, a normal class (with criticism lessons and practice in teaching) for the training of men preparing themselves to conduct local classes in coal-mining under the schemes of the West Riding and Derbyshire County Councils. New buildings for the University College are now in course of erection, and a strong effort is being made greatly to increase the resources and staff of the College and to secure for the institution a Charter as the University of Sheffield. . . .

* See footnote on page 430.

Other Institutions.—The Technical School of Art provides general instruction in art for a large number of pupils of both sexes, prepares them for the various artistic trades and professions and gives instruction to workmen in the higher branches of their art.

The School of Cookery is a training centre for those who are preparing themselves to be teachers of cookery, and provides special classes for other pupils. The school kitchen is also used for cookery classes for children from voluntary schools in the city.

There is also throughout the city during the winter session an extensive system of evening classes held at the University College, the Technical School, the School of Art, the Central School and at numerous centres conveniently placed for the attendance of students.

The Museum in Weston Park, the Mappin Art Gallery, the Ruskin Museum in Meersbrook Park and the Museum in High Hazels Park are valuable adjuncts . . .

The city possesses a number of free public libraries, including a central library with reference library, several branch libraries and special stations for the delivery of books. An effort has been made to establish a closer connection between the public libraries and the public elementary schools. The Sheffield Library and the library of the Literary and Philosophical Society contain many valuable books of reference, but are open to members only.

This brief summary does not attempt to give an exhaustive catalogue of the educational resources of Sheffield. . . .

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[Professor Sadler then proceeds to review briefly the strong points of the educational system of Sheffield, including the good work done by some of the leading institutions referred to above.]

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(3) THE NEED FOR IMPROVEMENT.

Secondary Education for Boys.—The weakest spot . . . is in the secondary education provided for boys. The existing schools are doing their best. Sheffield has reason to be grateful both to the Grammar School and to the Wesley College. . . . But neither school is at present in a position to provide the kind of higher secondary education which a great city like Sheffield needs and ought to have. A parent . . . who wishes to give his son the best kind of higher secondary education cannot find it in the city. This seems to me a great danger . . . Much of the future welfare of the city depends on there being in its municipal life, in its industrial activities and in its commercial undertakings that trained

and alert intellectual power, disciplined by study and broadened by liberal culture, which first-rate secondary day schools can do much to provide. . . . There is no secondary school for boys in the city quite on the same plane as the High School for Girls. . . .

The Training of Teachers.—The second point of weakness, which needs immediate attention, is connected with the training of those who intend to be teachers in the public elementary schools. The pupil-teacher system, as it exists to-day in Sheffield, ought to stop as soon as possible. . . . It will prove an excellent investment to put those boys and girls, who intend to be teachers, through a good course of secondary education, from twelve to 16 years of age; then to arrange that during the next two years of their training they should spend half their time in attending classes at the pupil-teachers' centre and the other half in service in an elementary school. Such service, however, should not be spent in hack-work, but in gaining, under the supervision of a good teacher, such an all-round acquaintance with class management and with methods of class instruction as will enable the pupil to profit more fully afterwards by the professional part of the training college course. And, when the next stage in the teacher's training is reached, and the student enters the Day Training Department at the University College, great care should be taken not to impose the task of reading for a university degree, in addition to the work of preparing for the professional duties of a teacher, on those students who, though well fitted to become useful and successful teachers, are not particularly brilliant from an academic standpoint. It would be far better, while keeping the Day Training Department an integral part of the University College and encouraging all the students in training to attend some of the stimulating courses given by the university professors, to provide for the large majority of the students in training special tuition for the training course approved by the Board of Education, and to relieve them of part of their present burden, which is too heavy for their strength and often inappropriate to their powers.

Scholarships—The third point which calls for earnest consideration is the need . . . for a well-planned scholarship system. This should touch the educational structure . . . at every point, and be so designed as to stimulate effort, to reward industry and to help forward young people of talent and application from one stage of education to another. The Board of Education have recently urged Local Education Authorities to arrange an adequate scholarship system, and have even gone so far as to say that "a well-organised "scholarship system, open to the cleverest pupils from all

"the schools of the area, without distinction, should be the first "care of every Local Authority." But it goes without saying that the success of such a scholarship system really depends on there being a satisfactory provision of linked schools through which the scholars may pass. And, it should be added, experience has shown the wisdom of refraining from offering too many scholarships. Let them be few enough in number to be really appreciated. And let the standard of the examination, on which they are awarded, be sufficiently high to exclude those whose abilities are not good enough to enable them really to profit by the extension of their schooling. It is no kindness to a child to push him up, educationally, into a false position. Provided that due regard is paid to the needs of the average boy and girl, it is a good thing if an Education Authority is in a position to give prolonged and really effective help to those pupils who have shown special talent. . . .

Other Important Points.—HIGHER INSTRUCTION IN ARTS AND SCIENCE.—The first is the importance of strengthening that Department of the University College which provides teaching in arts and science. This is needed in the general interests of higher education in the city, but not less in the special interest of the technological side of the College and in the industrial interests of Sheffield. The work of the Technical College, admirable as it is, would greatly gain in force and depth if it were supported by a strong department of pure science. A youth whose training in pure science has been neglected is a one-sided man. Technology is applied mathematics, applied physics and applied chemistry. A man who has been narrowly trained in technological subjects can get along very well so long as he is dealing with the problems for which he has been already supplied with the necessary amount of the basal mathematics, physics or chemistry. But what is wanted is that he should be equally able to deal with new problems; and, in order to do this, he must have, as a foundation for his technological skill, a thorough knowledge of the pure science which it is his task to apply to practical problems. Much the same is true, though in a different degree, of the need which the student of technology has for an intelligent interest in many subjects in the arts side of a university college programme. Applied science is exerting an ever-growing influence on social problems and on the intellectual movements of our time. It is necessarily disturbing much of the old order. It cannot help bringing about profound changes in our point of view. It affects the moral and human side of things as well as their material and mechanical side. It is expedient,

therefore, that our trained technologists should have made some acquaintance with those questions of human history and development which are treated in the philosophical, the historical, the literary and the economic courses at a university. A divorce between technology and culture would be sterilising to both sides, and this fruitful union of thought is even more needful in the case of professors and teachers at a university college than among the students. It is much to be hoped, therefore (and not least in the true interests of technology itself), that technological work will not unduly absorb the funds and benefactions of the University College.

* * * * *

APPLIED ART.—Another point is the desirability of doing more to develop the study and teaching of applied art. The craftsmanship of Sheffield has made the city famous throughout the world. Every Englishman is proud of the handiwork of Sheffield. But can it be said that, on the artistic side, the most characteristic trades of Sheffield have done as much as they might have done to refine the taste, and so to quicken the demand, for beautiful forms?

SCHOOL OF DOMESTIC ECONOMY.—Again, there is need in Sheffield for a well-equipped school of domestic arts and sciences. The present School of Cookery awaits development. It should teach laundry work, housewifery and dresscutting as well. Yorkshire is celebrated for its skill in home arts. But, under the changing conditions of home life, there is some danger lest the good tradition should be impaired. The influence of a well-staffed and commodious school of domestic arts and science would be far-reaching. It would train teachers. It would provide special classes for girls who have already left school. It would enable young women to qualify themselves before marriage in the difficult and most important science and art of home-making and home-keeping. It would fit them to give practical oversight, and, when needful, training, to their own maidservants. And indirectly it might have a beneficial influence on the ideals of our education for girls, guarding it from being too "bookish," but keeping it intellectually thorough, artistic in spirit and in close touch with the real tasks of life.

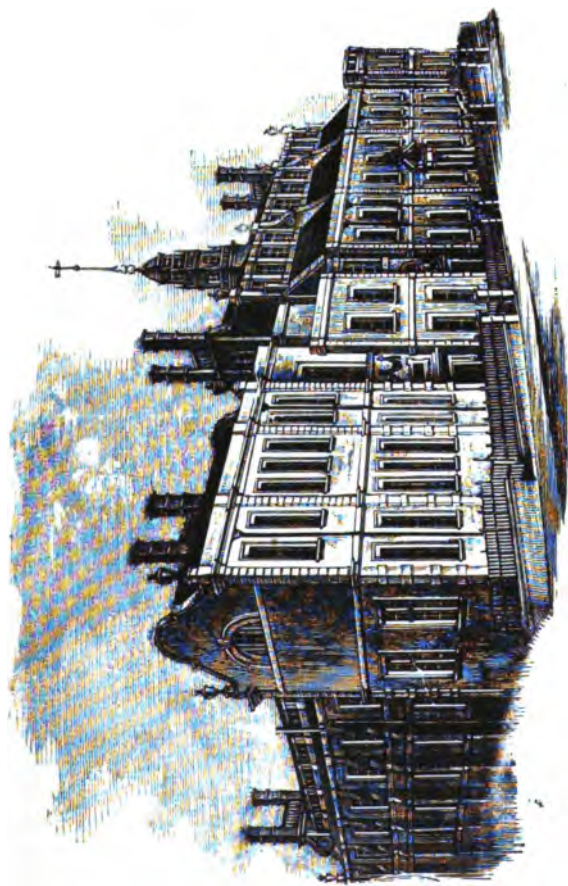
REFERENCE LIBRARY.—Finally, I would touch on the need for a better reference library in Sheffield. In this respect the city is behind Leeds, Manchester, Birmingham and many other great communities. . . . What is now available is inadequate to the needs of a great city, especially in view of the coming

developments in its educational life. A first-rate reference library is a necessary part of an effective system of higher education. At present there is no library in Sheffield, so far as I could ascertain, where a reader can find the best new foreign books or the leading French, German and American magazines. . . .

(4) RECOMMENDATIONS.

I will now submit for the consideration of the Committee some practical proposals for meeting the present needs of Sheffield as regards secondary and higher education and for remedying those defects which injure the educational interests of the city.

A First-Grade Secondary School.—It is urgently necessary to improve the secondary education provided for boys. There is need for a secondary school which should give the highest instruction in English, in classics, in mathematics and in foreign languages, together with instruction in science. This school should train boys intended for professional careers and also for the higher posts in business. It should prepare for the universities. It should be able to give the best possible chance to boys of high mathematical or linguistic ability. The classes should be small. It should have a long course, extending from ten (or twelve) to 17, 18 or 19. It should be on the highest plane of intellectual efficiency; thoroughly well staffed; accommodated in a good building; well equipped with a library and apparatus; and carefully organised from the point of view of school games and of those other forms of school activity which develop *esprit de corps*, give a good tone and teach the virtues of corporate life. Manual training should be encouraged throughout the school. The training of the hand helps to develop the brain. Great care should be taken to make the most of the average boy, but at least equal care is necessary to avoid sacrificing the interests of the specially clever pupils. With care, these two objects can be successfully combined. The average boy can be helped forward, and the brilliant boy can be given the special opportunities which he needs. But, in order to combine these advantages, the staff must be large and thoroughly efficient. With help, either the Grammar School or the Wesley College could be raised to the level of complete efficiency described above. But I do not see that the City Education Committee can fairly be asked to help both of them equally up to the amount which would be required. If Sheffield were starting now with a clean page, it would doubtless establish one higher secondary school for boys, not two. At the same time, the Wesley College has great claims on the consideration of the city. It has done much for the town. It is



THE CENTRAL HIGHER SCHOOL, SHEFFIELD. (*See pages 441-4.*)



WESLEY COLLEGE, SHEFFIELD. (See pages 430-1 and 436-9.)

about to be re-organised on a public basis. It would . . . welcome public representation on its Governing Body. It would, I believe, establish a conscience clause. . . . If a choice has to be made between the two schools, the Grammar School, being an ancient local Trust and public Foundation, has the first claim on increased public support from the city. It would be a great mistake to give both schools a small grant instead of making a thorough and permanent improvement in one of them.

Were the way to open at the present time for a union between the Grammar School and the Wesley College, there would be considerable advantage and ultimate (though not immediate) economy in such an amalgamation. The title of the Grammar School should be retained; but the school should be removed to the buildings now occupied by Wesley College. Those buildings, however, would need expensive alteration before they were well fitted for the future work of the school in question. And in their reconstruction the utmost care should be taken to consult the experience of the teachers who would work in the school, and to profit by the best examples of modern secondary day school architecture in this country, in the United States and in Germany. Much money has been wasted on school buildings in the past through neglect of these precautions.

Such a plan, if it could be realised, would . . . be on the whole the best . . . The union of the two schools would concentrate effort. . . . Sheffield would have its one conspicuous higher secondary school for boys, and would rally to its support with an allegiance which is at present necessarily divided between two institutions. At the same time, the realisation of the plan would be beset with difficulties; many obstacles, legal and other, would have to be overcome; and the arrangement of the transfer would doubtless take a considerable time.

* * * * *

[In view of the possibility of the union of the two schools being found impracticable, Professor Sadler submits an alternative plan, which would aim at a material strengthening of the staff and the improvement of the buildings and equipment of the Grammar School, and at allowing the Wesley College full participation in the city scholarship scheme proposed, provided that suitable improvements in the equipment were made by the Governing Body.]

* * * * *

Second Grade Secondary Schools.— . . . In addition to a higher secondary school of the type described above, there is need . . . for another secondary school with a different aim.

So far as boys are concerned, a secondary school is wanted to feed the Technical School with a steady stream of well-educated lads of 16 years of age. What is wanted, so far as girls are concerned, is a secondary school which will feed the Pupil-Teachers' Centre with a steady stream of well-educated girls of 16 years of age. In order to meet these wants . . . there ought to be, in a central part of the city, so as to be convenient of access by electric tramcars from all parts of the borough, a secondary school, with a well-planned curriculum of studies extending over the years from twelve to 16. It should be a thoroughly good school of a purely modern type. It should be a school with low fees—say one shilling a week, which (allowing for holidays) would be about £2 a year. It should be very well staffed with highly-competent and well-trained teachers. No class should be allowed to contain more than 30 pupils. Individual work should be encouraged. The school should be in two divisions, one for boys and one for girls, with a different curriculum in each division, though many of the teachers might do work in both divisions, and, if the head-master of the school thought well, boys and girls might work together in some of the classes. There should be a large number of scholarshipstenable at this school. These scholarships should give free education and be awarded for merit. The Education Committee would also . . . do well to keep in hand a fund out of which further remission of fees could be privately made in deserving cases. From this fund small maintenance-allowances should also be made when such addition to the scholarships was thought expedient in view of special difficulty experienced by any parent in keeping, without such aid, his child at school throughout the course.

Such a school would be mainly recruited from the public elementary schools. Pupils should be drafted to it from the elementary schools at, or near, their twelfth birthday. Earlier transference would injure the tone and intellectual standard of the elementary schools; would be incompatible with judicious selection for scholarships; and, in the case of girls, would involve the inconvenience, and even danger, of sending little children to school through crowded streets, often at some considerable distance from their homes. Later transference, on the other hand, would throw the boys and girls too late in taking up the more advanced work of the secondary school curriculum, especially the mathematics and the foreign languages. A very sharp boy will be at the top of the elementary school by his twelfth birthday, and should then be moved forward to further opportunities than the elementary school can offer him. . . .

By reason of its convenient situation and close connection with the public elementary schools of the city, the present Central School should . . . be converted into a secondary school of the kind described. . . . As part of their general scheme for the improvement of secondary education . . . the City Education Committee should approach the Board of Education for recognition of the Central School, which is at present carried on under the Higher Elementary School Minute, as a secondary school. . . .*

THE CURRICULUM OF THE BOYS' SCHOOL.—I have said that, on the boys' side, the Central Secondary School should aim at feeding the Technical School. A boy should enter the Technical School at 16, and not before. He should enter the Technical School with the following level of attainment :— (i) he should have had, to start with, a good English education : that is to say, he should have a good command over his mother tongue . . . and should have gained an interest in the broad outlines of history, with a closer knowledge of the lives and deeds of some well-chosen national and other heroes, and have read and learnt by heart a good deal of first-rate English poetry and some English prose. Most of this foundation should have been laid in the primary school ; but the secondary school should aim at sustaining and developing, so far as time allows, the boy's interest in history and good literature and at practising him in power of fit expression in his mother tongue. . . . (ii) Next the boy should come to the Technical School with a sound grasp of elementary mathematics. This is a matter of the highest importance. The methods of teaching mathematics should be made as practical as possible. The boys should be made to see the practical value and application of what they learn ; and there should be close and friendly conference, steadily sustained, between the mathematical teachers at the Central Secondary School and at the Technical School, so that the work of the former may dovetail into that of the latter and that the same spirit of teaching may prevail in both institutions. Very great care should . . . be taken to ensure that the mathematical teaching in the Sheffield schools is, from top to bottom, first-rate of its kind. This remark applies to the elementary and preparatory schools, as well as to the schools of higher grade. Mathematics are the foundation of applied science. Sheffield depends, in large measure, on applied science. Good mathematical teaching all through the Sheffield schools is a necessity of the situation. It should be on the best modern lines. Much harm

* An illustration of this school will be found on p. 437.

can be done by having mediocre mathematical teaching in the early stages of a boy's educational career. . . . (iii) In the third place, when the boy enters the Technical School he should, if possible, be able to read, to speak and to write simple French with intelligence and accuracy. He will find French very helpful to him in his technical studies. In later years he is not unlikely to have to travel on business, and the power of speaking French is a valuable possession and by no means without its bearing on business success. And, further, a boy understands his own language much more thoroughly when he has learnt another to compare with it. A well-organised and really well-staffed modern secondary school can give a boy fair command over one foreign language in the course of a curriculum extending over the four years from twelve—16. But it is indispensable that the teaching should be on modern lines, that the classes should be small (never more than 30) and that not less than one lesson a day should be devoted to the subject. (iv.) What remains of the boy's curriculum at such a modern secondary school as might be established at the Central School should be made up of physical science (not forgetting first-hand study of Nature), drawing, some manual training (this is essential), geography, physical training and vocal music. This, with care and with provision for religious instruction, can just be got into 31 lessons per week. It would mean hard work for the boys, but they would be there to work and the burden would not be unreasonably great. There should be good holidays. If really hard work is done in term-time both boys and masters need them.

It will be found desirable, when the Central School is reorganised . . . to arrange that there should be no work done at the Technical School for boys under the age of 16, except in special cases (if such arise). . . . I have in mind the possibility of boys coming from a distance to the Technical School and . . . desiring special preparation in mathematics before entering the technical classes. Absolute efficiency in preparation should be required on the part of the schools preparing boys for the Technical College. The right working of the whole system depends on this.

If for boys not intending to enter the Technical School (e.g., some would be intending to become teachers), it were desired to make some modification in such a curriculum, this could easily be done. In such a modified curriculum, shorthand might well find a place, provided that the boys had already got an accurate knowledge of English. . . . Typewriting, however, should not be included. . . . One function of the Central School

will be to furnish the business houses of the city with bright, soundly-educated youths, accurate in their work, intelligently trained and serviceable as clerks in offices. For this type of boy the curriculum should be rather different from that sketched above for the boys intending to enter the Technical School. Much of the work, however, could be taken together. But the interests of the Technical School ought never to be overlooked, because the interests of the Technical School are really the interests of the staple industries of Sheffield. And any tendency to smattering should be sternly discouraged. What the boys learn, they should learn thoroughly well. Mastery is the secret of intellectual advance. For this reason I hesitate to suggest an arrangement (otherwise practicable enough) by which some boys might take a second modern language in lieu of some of the mathematics or science prescribed in the other course. Experience will show if such an arrangement is needed. Probably it will be wanted. The second modern language might be German or possibly Spanish. But at first I should be disposed to try the experiment of devoting any time taken off from mathematics or science to a more thorough study of English than to a second foreign language.

THE CURRICULUM OF THE GIRLS' SCHOOL.— . . . The course of studies for the girls' division of the Central Secondary School . . . like the boys', should extend over four years. But . . . their burden of work should be far less. It is a grievous mistake to overwork girls at this critical period in their growth. And girls often show themselves more unsparing of their strength in school studies than boys usually are. An important aim of this division should be to produce a fine type of women teachers for the Sheffield elementary schools. But, of course, many of the girls would go into business and a much larger number would devote themselves to the duties of home life. These girls should all have a thoroughly good training in English; they should have a sound training in mathematics; their foreign language, taught on modern lines but with great stress on grammatical accuracy, should be French (or, if thought well, German); and probably the best choice of scientific subjects would be botany and hygiene. Vocal music, drawing and the arts of home life should receive special attention. In girls' education there should be a strong artistic element. They should be taught to love and admire beautiful things, beautiful characters and beautiful literature.

SCHOOL GAMES.— . . . The Central Secondary School should be given every opportunity for developing a strong corporate

life. A good field for school games is badly needed. It would be wise to provide one at some convenient place fairly accessible to the scholars. Much can be done to give the school a thoroughly good and healthy tone by well-organised school games, etc. They give the teachers an opportunity of making friends with the scholars, and so they help the discipline of the school. A good deal of what is most humanising in the work of a school depends on the degree to which the life of the school is well organised outside the class-rooms. It may be suggested that the Central Secondary School and the Pupil-Teachers' Centre (in its reorganised form) might share a good field for various forms of school games. This plan would happily conform to the recommendation recently made by the Board of Education that the Pupil-Teachers' Centre should be brought into some organic relation to the secondary school through which its pupils would mainly come to it. In the playing field and in organised school games, the boys and girls at the Pupil-Teachers' Centre would continue to keep up a friendly intercourse with those whom they had left behind in the secondary school, but many of whom would in turn follow them to the Pupil-Teachers' Centre. And as the Central Secondary School and the Pupil-Teachers' Centre stand side by side, there would, in the case of Sheffield (if the plan here outlined is approved), be favourable opportunity for meeting the wish thus expressed by the Board of Education. . . .

FEES.—In the new regulations for secondary schools, the following clause appears:—"The Board will not in general recognise schools in which no fees are charged, but they will be prepared, in certain cases, to approve the remission of fees to individual students. Holders of scholarships, exhibitions and studentships may be exempted from the payment of school fees." This requirement would be complied with if some such fee as one shilling a week (or about £2 a year) were charged to pupils at the Central Secondary School. This would be a very modest payment for the great educational advantages which would be offered by the school. Ample provision of scholarships should be made, and the Committee should be empowered privately to remit fees in cases in which it might seem to them reasonable to do so.

The Training of Teachers.—**THE PUPIL TEACHERS' CENTRE.**—As regards the Pupil-Teachers' Centre, . . . the Education Committee should, without delay, comply with the new proposals of the Board of Education. On and after August 1st, 1904, pupil teachers (except in rural districts) will not be admitted under 16 years of age. After August 1st, 1905, pupil-teachers will not be permitted to serve in a public elementary school more than

half the time the school is open, and they will be required to receive half-time instruction in an approved pupil-teachers' centre throughout their engagement. The period of their engagement may extend over two years.

All this fits in excellently with the plan outlined in this report. On leaving the Central Secondary School at 16, the boys and girls intending to be teachers would be admitted as pupil-teachers, and would spend the next two years as half-timers at the Pupil-Teachers' Centre. . . .

In the Pupil-Teachers' Centre, I recommend that no class be allowed to exceed 30 in number. The teachers should be given ample time for private reading. What is most intellectually stimulating in good teaching springs from the teacher's freshness of mind and persistence in private study. Encouragement should be given to the corporate life of the institution. As suggested above, it should be provided with a field, at some convenient place, for use for school games, in common with the Central School. Care will be needed in order to secure that the pupil-teachers, during that half of their time which will be spent in school, should be given an all-round introduction to the problems of school work and that the educational side of this part of their pupil-teachership should not be made too little of.

It might be well that the Education Committee should contribute towards the payment of entrance fees for those pupil-teachers who, with the concurrence of their teachers, take university examinations. Half the fees of this nature at the Pupil-Teachers' Centre would amount . . . to about £25 per annum.

It also deserves consideration whether there might not well be provided at the Pupil-Teachers' Centre, or at some other convenient place, courses of special instruction for Art. 68 teachers . . . It would be a great advantage if they could be helped to qualify themselves under Article 50.

Something might also be done to help acting teachers to prepare for their examination. Two evenings a week and Saturday mornings in a two years' course would probably suffice for this purpose. Some of the most efficient teachers in the schools of the city might be enlisted to take part in this work.

THE DAY TRAINING COLLEGE.—The importance of the Day Training College will increase. On its efficiency the welfare of elementary education . . . will largely depend. It should supply . . . schools with a considerable number of well-trained teachers . . . The value of the work of the Day Training College would be materially increased if fewer of the students in training were sent in for the regular university course. That course is beyond the power of many of the students. To take the

professional work required by the Board of Education and the work required for the university degree is too heavy a burden for many of those who join the Day Training College. They would . . . in a majority of cases, derive far more intellectual benefit (and be much better trained as teachers) if they took the regular course approved by the Board of Education for students in training, and did not think of going in for a degree. But I am far from meaning that the Day Training Department should be separated from the University College. It is an excellent thing to keep the two in close and organic connection. And all the students in training, without exception, can derive stimulus and intellectual advantage from attending some of the lectures given by the professors. But it would be advisable that the Day Training Department should (like the Technical Department of the College) have a separate Committee. It would gain by having a specially-appointed head. On its Committee should sit representatives of the Local Authorities which might contribute to its maintenance. The plan of studies for the students in training should be drawn up by the Head of the Department, under the general direction of this Committee of the Day Training Department. The Committee and its officers should, therefore, include persons specially qualified to deal with the work of students taking the non-degree course. The intellectual aptitudes and special needs of the different students should be carefully considered.

The Day Training Department would have two categories of students : (a) matriculated students who had passed matriculation before admission and would go on through the degree course; (b) students who had not matriculated and would follow a non-degree course of study. The students in the first category would come to the Day Training Department for their classes in professional subjects. There should be a special staff of tutors to teach the students who were taking the non-degree course. As soon as possible . . . a residential hostel should be established for some of the women students and another for the men. Two members of the staff of the College should be charged with the duty of looking specially after the men and women students respectively. Care is needed in the choice of the schools to which the students in training are sent to practice. The head-teachers of those schools might well be given a small yearly honorarium as an acknowledgment of their labours in taking pains with the students and helping them in their work.

School of Art.—The Technical School of Art has had a distinguished history, and has done valuable service . . . But . . . much more should now be done to develop

the teaching of applied art, and . . . provision should be made for the teaching of silversmithing, enamelling, die-sinking, ivory-carving, ornamental hammered iron work, fine casting in metals, architecture, stained glass, bookbinding, painting and decorating, heraldry and art needlework. These classes should, as far as possible, be made available for evening students. It is important that the School of Art should continue to offer the thorough and systematic course of instruction in art which has proved in the past of such great value to the best students. But . . . without prejudice to the claims of the longer course, more might be done to provide shorter courses, especially in applied art, to meet the needs of workmen engaged in the artistic crafts . . . It is much to be hoped that employers in the artistic trades . . . will encourage the lads who enter their employment at 14 to come to the School of Art in the evening. Now that so much machinery is used, a lad often gets no chance of studying form. There are signs of an increasing demand for the finest qualities of artistic metal work, and Sheffield may miss a great opportunity if more is not done to encourage the rising generation of workers to make a study of applied art, and thus prepare themselves to excel in the artistic development of their craft. Nor should it be forgotten that while mechanical work often tends, through the deadening of interest, to deterioration of character, the study of applied art may awake the creative faculty and elevate the thoughts of the worker and the tone of his life. . . .

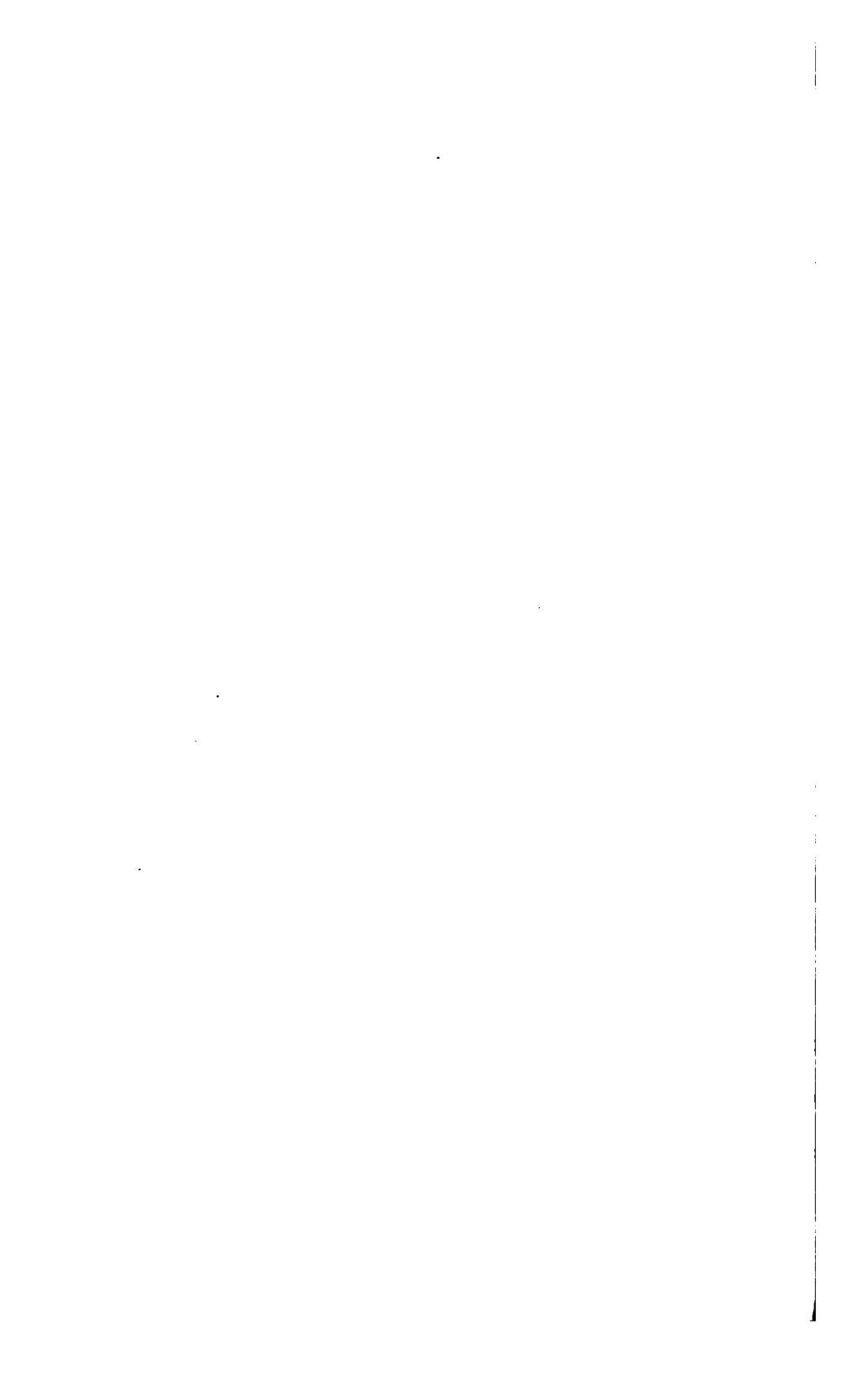
Evening Classes.—Owing to my inquiry taking place in the summer, I had no opportunity of seeing the evening classes at work. I have, however, acquainted myself with the arrangements of the Committee, and recommend that an effort should be made to encourage the best pupils to pass on from the district evening classes to the central evening classes, and thence to the technical school evening classes. It would be well . . . to abolish the scholarships which now cause the holders to proceed direct from the district evening classes to the technical school evening classes and to encourage these scholars to spend a couple of years or so at the central evening classes before coming on to the evening classes at the technical school. Such an arrangement would follow the general plan of linkage and co-ordination suggested in this report. . . .

Scholarship System.—The institution of a well-planned scholarship system is a matter of great importance . . . Much good has already been done by the Town Trust Scholarships, the Corporation Scholarships, the Firth Scholarships, the

scholarships at the Grammar School, the Lancasterian scholarships, the School of Art Scholarships and the scholarships of the Grimesthorpe Educational Endowment. But a more systematic provision has now become necessary, and it is possible that some of the scholarships mentioned above might be worked into a new general scheme planned on the following lines :—

GENERAL CONSIDERATIONS.—It is desirable to encourage the parents of promising children to send them on from the elementary and preparatory schools of the city, at twelve years of age, to one or other of the secondary schools. There should be held annually, in July, an examination in elementary subjects (with a paper to test general knowledge and intelligence of observation), open to all children under twelve in the public elementary schools of the city and in those private preparatory schools which are regularly inspected and found efficient (see . . . below). The subjects of examination should be confined to those taught in the public elementary schools. No candidate should be admitted to the examination without a recommendation as to character, industry and ability from the head-master or head-mistress of his or her school. The inspectors of the Education Authority should be careful in their visits to the schools of the city to discourage the “ cramming ” of candidates intended for this scholarship examination. In order that all the children in the city should have, as far as possible, an equal chance, there should be no papers in French or in Latin. Candidates entering for the examination should state to which of the secondary schools of the city they proposed, if elected, to proceed. The standard required for election to a scholarship tenable at the Grammar School, Wesley College or Girls' High School should (in view of the longer course at those schools) be higher than that for election to a scholarship tenable at the Central Secondary School. It is no real kindness to a boy or girl to encourage them to begin at twelve years of age a course of higher education which they will not be able to finish or which is likely to prove beyond their powers. At the same time, it is of fundamental importance that all the secondary schools of the city should be effectively open to promising boys and girls from the humblest homes. The concern of the City Education Committee should be to secure for every promising child of small means that education which, so far as can be seen beforehand, will be the most appropriate to his or her needs in later life. The scholarships tenable at the secondary schools classed as “ minor scholarships ” below should pay all fees at the secondary school chosen. It would be desirable . . .





to give special encouragement (a) to very promising children who would be likely, in due course, to do brilliantly at a university; (b) to those intending to become teachers; and (c) to those who would go on to the Technical School and devote their trained ability to the industrial requirements of Sheffield. The City Education Committee should have at its disposal a sufficient sum of money to enable the payment of a "maintenance allowance," supplementary to the scholarship, to be privately made in cases in which such a payment is found to be desirable. In some cases a parent cannot afford to keep his child from work throughout a long secondary school course without some small supplementary aid in addition to the payment of school fees. It is also sometimes desirable to help a scholar in the purchase of books.

Those candidates who, after being recommended by their teachers, had successfully reached, in the written examination, the standard required for election to a scholarship at the school designated, should next be seen and orally questioned by the head-master or head-mistress of the secondary school to which, if elected to a scholarship, they would proceed. In this way it could be ascertained, before a final step was taken, that the child was really suitable for the work of the secondary school in question. This second sifting is a matter of practical importance. . . . The policy of the Education Committee should be, first, to bring the scholarships within the reach of all the most promising children . . . however poor the circumstances of their home life; but then, after this first drawing of the net, to confine its help in the way of scholarships to those whose abilities and promise might give reason for confident hope that they would really benefit by the aid which would thus be given; and, afterwards, to give liberal and sustained help (so far as need arose) to those scholars with a view to enabling them (provided that their industry, character and progress justified the Committee in so doing) to enjoy to the full the best education suitable to their future needs.

It should be an honour to be elected to a scholarship. The number of scholarships awarded in any year should depend on the ability of the candidates presenting themselves. A standard would soon become established. It would be wasteful to drench the city with scholarships beyond its needs. No one can say beforehand exactly how many scholarships would be needed. But the general plan of the scholarship system should be laid down on broad, clear lines. Experience would show in due course the number of scholarships which would normally be required under each head of the scheme.

DETAILS OF THE SCHEME.—The following table suggests a plan for consideration :—

Minor Scholarships.—(a) Not more than 50 scholarships to be awarded annually, tenable at a secondary school, and open to all children not over twelve in public elementary and recognised private preparatory schools . . .

The large majority of these scholarships should be held at the Central Secondary School. About half should be given to those intending to be teachers. The scholarships should be tenable (subject to satisfactory annual reports of conduct and progress) for the whole course of the school, whether four years or upwards. They should give free education at the school in question. The Committee should be in a position to add, when necessary, an allowance for maintenance.

(b) About 60 scholarships (30 of £1 and 30 of 10s.) from the district evening classes to the central evening classes, tenable for one session.

(c) About ten scholarships of £2 from the evening central classes to the Technical School evening classes, tenable for two sessions.

Major Scholarships.—(a) Three free studentships annually, tenable for three years (subject to satisfactory annual reports of character and progress) at the Technical School (day classes), with maintenance allowance of £5, £7 10s. and £10, for each of the three years respectively.

(b) Five free studentships annually, tenable for three years as (a), but without maintenance.

(c) Two exhibitions annually of £50 a year for four years, tenable at a university (subject to satisfactory annual reports of character and progress) and open to boys at the Royal Grammar School or at Wesley College.

(d) One exhibition annually, of £50 a year for four years, tenable at a university (subject to satisfactory annual reports of character and progress) and open to girls at the High School or at any recognised private school for girls In the case of the Girls' High School, the Girls' Public Day School Company, Limited, might . . . fairly be asked to meet any such offer . . . by establishing one or more further exhibitions, of equal annual value, tenable from the Sheffield High School.

(e) Two exhibitions, each of £25 a year and tenable for three years at a university or university college (subject to satisfactory annual reports of character and progress), and open to students at the Pupil-Teachers' Centre.

(f) One exhibition annually of £50 a year, and one of £25 a year, each tenable for one year in the Technical School Day

Department and open to students of the evening department of the Technical School.

The above major scholarships would be awarded according to the result of special examinations held annually. This system of major scholarships would materially help forward specially promising scholars to places of higher education. The opportunities afforded by the latter should be brought effectively within the reach of every . . . boy and girl, however hampered by poverty at home, provided that the assistance so given is confined to those who really show promise of being able to profit by the prolonged education of the kind in question.

FINANCIAL CONSIDERATIONS.—It will be observed that the full cost of such a scholarship system would not be reached until the fourth, or even a later, year of its duration, when the fund would have to bear the accumulated burden of all the scholarships tenable at the same time in the various secondary schools and at the places of higher education chosen by the scholars.

The scheme, outlined above, has been so proportioned that, roughly speaking, about the same annual cost would be incurred in respect (a) of the scholars at the Technical School and (b) of those holding exhibitions at a university, while (c) a somewhat larger annual sum is proposed to be assigned to the scholarships tenable by scholars from the elementary and preparatory schools at the secondary schools and evening classes, not counting the additional cost of the variable maintenance allowances to be assigned according to need.

School of Domestic Economy.—It is desirable that, as soon as opportunity offers, the present School of Cookery should be moved to larger buildings and developed into a school of domestic arts and science, teaching not cookery alone but laundry work, housewifery, dress-cutting and dressmaking. There ought to be a close connection between some departments of the School of Domestic Arts and Science and some of the courses of instruction at the School of Art, more especially the classes in design and in art needlework which would be held at the latter institution.

Inspection of Private Schools.—There are a number of private schools . . . which are doing good work and meeting some of the needs of the city. It would be expedient not to discourage them. They may continue to form a valuable supplement to the public educational provision. . . . But . . . all private schools should be invited to place themselves under annual inspection and examination, so that their intellectual efficiency may be guaranteed, the sufficiency of their premises attested and the adequacy of their sanitary arrangements

assured. . . . All the private school masters and mistresses . . . would be prepared for such inspection. They would be helped by the suggestions thus given to them in regard to educational methods. But adequate inspection is costly, especially if separately arranged by a number of different small schools . . . The City Education Committee should offer to pay, if such assistance were applied for, two-thirds of the cost of the regular inspection of any private preparatory or private secondary school . . . provided that the school itself defrayed the remainder of the cost and maintained itself in efficiency. By grouping inspections of private schools through a term of weeks, the City Education Committee could make an economical arrangement. The inspection should be conducted by some outside body approved by the Board of Education. Success in passing a few pupils through external examinations should not be regarded as in itself a sufficient test of the educational efficiency of the whole work of a school. Inspection of the premises and of the educational methods employed throughout the school are necessary as well. A comprehensive inspection (conducted by two or three inspectors) need not be held more than once in three or four years, but there should be regularly every year an adequate inspection of the premises and a sufficient testing of the pupils' attainments according to the professed aims of the school. Private schools . . . which conform to this test should . . . be allowed, so long as they remain efficient, to send in their pupils for city scholarships and, in some cases, to receive scholars if the latter so desired. Such private schools might also be included in the annual issue of the City Educational Directory proposed below.

Educational Directory.—In order that every citizen (and more particularly every parent) . . . might clearly comprehend the nature of the different schools and other educational institutions . . . and the kind of education offered by each, it would be convenient if the City Education Committee were to issue annually under its authority, in an attractive form and with abundant illustrations, an Educational Directory . . . This should exhibit the whole of the educational resources . . . from the primary and preparatory schools, through the secondary schools, to the University and the Technical College. Private schools, recognised as efficient, should be admitted to the category in the Directory, appropriate to their educational grade and aims. There should be a section for Sunday schools. It would also be well to include in the Directory a description of all the institutions (*e.g.*, libraries, museums, musical associations, etc.) which co-operate in the

culture of the city. A parent, by consulting this Directory, should be able to ascertain the educational aim of every school, the nature of its staff, the outline of its curriculum and the fees charged for its education. Such a publication would present a clear and attractive picture of the educational resources . . . It would be of practical value to parents, and a useful element in the co-ordination of the educational activities . . .

Teachers' Conferences.—It seems desirable that the City Education Committee should encourage conferences among the teachers engaged in different types of school . . . with a view to the strengthening of educational unity among the various institutions, to the diffusion of knowledge of new educational methods and to the adjustment of the curricula of the different schools in such a way as to remove any unnecessary obstacle to the passage of children from one grade of education to another. The Sheffield Branch of the Teachers' Guild has already done useful work in this direction.

(6) ABRIDGED SUMMARY OF RECOMMENDATIONS.

(1) Greatly to improve, without delay, the provision for the higher secondary education of boys . . .

(2) To take steps to convert the present Central (Higher Elementary) School into a very efficient modern secondary school, with not more than 30 pupils in each class and with a course of study extending from twelve to 16 years of age. This school should prepare—(a) boys for (i) the Technical School, (ii) business occupations and (iii) the profession of teaching in elementary schools; and (b) girls for (i) home life, (ii) the profession of teaching in elementary schools and (iii) business callings. A good field for school games should be provided for the Central School and Pupil-Teachers' Centre in common.

(3) To remodel the present pupil-teacher system as at present operating . . . to send all intending pupil-teachers to a secondary school from twelve to 16 years of age, and to provide at the Pupil-Teachers' Centre a half-time education in small classes, with a two years' course, for pupil-teachers from 16 to 18 years of age.

(4) To remodel and reorganise the teaching at the Day Training Department of the University College.

(5) To develop applied art teaching at the School of Art.

(6) To establish a scholarship system.

(7) To co-ordinate the evening classes.

(8) To encourage the regular inspection of private schools. . .

(9) To issue annually an Educational Directory . . .

(10) To encourage conferences on educational methods among the teachers in all the schools . . .

The above should . . . be undertaken at once. The following should be done as opportunity may offer :—(11) to provide hostels for students at the University College ; (12) to develop the School of Cookery into a school of domestic arts and science ; (13) to provide a good reference library . . .

(6) COST OF PROPOSALS.

The probable additional net annual cost . . . of carrying out the recommendations 1-10 above would be as follows per annum :—improvement of higher secondary education for boys, £1,500 ; Central Secondary School, £1,800 ; Pupil-Teachers' Centre, £500 ; scholarship system, £2,670 ; School of Art, £1,000 ; Day Training College, £800 ; inspection of private schools (say), £100 ; annual publication of Educational Directory (say), £150 ; total, £8,520. This would be less than 1½d. rate. The cost of carrying out the recommendations 11-13 is not included in the estimate, nor (apart from the sum assigned to the development of the Day Training College) does the estimate take into account the cost of developing the University College into an independent University of Sheffield. The cost of the scholarship system for the first three years respectively would be about—(1) £784 ; (2) £1,443 ; (3) £2,082.

(B) DERBY.

THE PROPOSALS OF THE LOCAL EDUCATION AUTHORITY.*

Introduction.

Your Sub-Committee have sent a circular and a printed form of questions to every school in the borough other than elementary, asking for information as to endowment and Governing Body, curriculum, pupils, fees, buildings, staff, examinations and scholarships. The time which has elapsed since our appointment has not been sufficient to enable us to obtain replies from all the schools concerned; we have, therefore, been obliged to consider the question in the light of information which was already in our possession.

The Local Authority is to promote the general co-ordination of all forms of education with due regard to existing efficient schools. We have endeavoured to outline the principles of a scheme which will, as far as possible, utilise the existing *efficient* schools or colleges, or render the non-efficient ones efficient, in order to regulate and combine the various educational agencies in such a way that all the educational needs of the area may be fully met. Such a scheme can only be at first a tentative one, and must necessarily be subject to alteration from time to time, because not only may the needs of the area change, but the interpretation of those needs and the best methods of satisfying them may alter.

The Provisions of a Suitable Scheme.

A perfect scheme for Derby should make it possible—

(1) For a clever pupil from any kind of elementary or preparatory school (a) to pass to one of the secondary schools in the borough; (b) to pass through the Technical College to an engineering or chemical career; (c) through the Technical College to the

* Report of Sub-Committee on Higher Education adopted by the Education Committee, 29th July, 1903. The questions arising out of the report were subsequently discussed at a Conference between the Committee and two officials of the Board of Education. A letter has been received from the Board approving the proposals as set out in this report, and making certain suggestions as to the manner in which the proposals should be carried out. This letter is now under the consideration of the Education Committee. (See Editorial Notes, p. 400.)

Birmingham University or Owens College for a commercial or professional career; (d) through a high school to a professional career, or to the Universities of Oxford or Cambridge.

(Such results might be attained by means of scholarships, or by payment or part payment of fees by the Education Authority, in cases where pupils give satisfactory proof of ability. We believe that the money spent in some such manner to help the able child will be amply repaid to the community.)

(2) Should provide for the education and training of teachers. The preparatory part of this training might be done at a secondary school, supplemented by attendance at the teachers' centre classes and at a double course of university extension lectures.

(3) Should provide teaching in science, art, technical and commercial subjects, by means of evening schools and classes.

(4) Should provide a good higher school for boys.

In a town the size of Derby there should be a good school for the upper middle class, who contribute largely to the rates, and who are prepared to pay the necessary fees. Scholarships to this school should be provided for boys from elementary or preparatory schools. This school should provide a general education for boys up to 16 or 17 years. The subjects should include not only classics and mathematics but training in scientific method, modern languages, geography and history. After the age of 17 specialisation in the higher part of the school might be carried on in classics, mathematics, science or commerce for the universities, or for a professional or commercial career. If this school belonged to the town, some of its higher branches of work could be carried on in conjunction with the Technical College.

Detailed Suggestions for Consideration.

In conclusion, we suggest the following points for the consideration of the Education Committee :—

(1) That Abbey Street School should be recognised by the Board of Education as a secondary school.

(a) It would provide a cheap secondary school both for boys and girls, and would lead up to the Technical College and to higher schools.

(b) It could be utilised for the training of pupil-teachers.

(c) It would not unduly compete with other existing schools.

(2) That the Technical College be developed more on the lines of a university college for scientific, technical and commercial education and for research.

(3) That the supreme importance of commercial training should be recognised: that provision for an elementary course of commercial subjects should be made in the secondary schools, and in the evening continuation schools and classes: and that provision should be made at the Technical College for a more advanced course of commercial training.

In considering this question of commercial education, it must be borne in mind that in the Regulations recently issued by the Board of Education for Secondary Schools no provision whatever is made for commercial subjects, and that the grants made by the Board of Education appear to be only for science and art courses of instruction.

(4) That the Governors of Derby School be approached with a view of turning the school (including the preparatory schools) into a municipal one, under the control of the Education Committee. A new scheme would be required, in order to render the school efficient and more useful to the town than it can possibly be by adhering to the old traditions of classical and mathematical teaching and by being run on the present farming system with its small endowment.

The school would perform two functions, viz., that of a secondary school and a tertiary or higher school. The secondary department should provide a general training as far as possible without specialisation for boys who might leave for business or proceed to the Technical College for special subjects, or to the higher school for a classical or some other special teaching. The fees should be about ten guineas. The special work of the tertiary or higher part of the school would be to train boys for the Universities or a commercial career, and higher fees might be charged if thought necessary.

(5) That due regard be paid to co-ordination and utilisation of the teaching staff. For example, specialised teachers at the Technical College might be able, during the day time, to teach at the High School (Derby School), and students from the Derby School might attend classes at the Technical College.

IV.—EDUCATIONAL ENTERPRISE IN MANCHESTER.

THE ESTABLISHMENT OF MUNICIPAL SCHOOLS OF TECHNOLOGY AND OF ART.

By J. H. REYNOLDS, M.Sc., JOINT DIRECTOR OF EDUCATION FOR THE CITY OF MANCHESTER AND PRINCIPAL OF THE MUNICIPAL SCHOOL OF TECHNOLOGY.

General Historical Retrospect.

The Municipal School of Technology at Manchester is the direct outcome of the Mechanics' Institution. This form of educational effort was for nearly 80 years of the nineteenth century, in the main, the only means whereby the working and, in large part, the middle-class found the opportunity of continuing their education or of making up the serious deficiencies which resulted from the miserably inadequate provision of day school education that characterised the years preceding the great educational enactment of 1870.

The enlightened and far-seeing philanthropy of men like Dr. Birkbeck, Lord Brougham and others, to whose efforts was due the foundation of the mechanics' institutes in the early years of the nineteenth century, was the true inspiration and forerunner of the great movement which we know to-day under the name of "Technical Instruction." To this end they essayed and accomplished the task of establishing mechanics' institutes throughout the land, and, though the first was established in London in 1820, they were nowhere so successful or so deeply rooted and firmly sustained as in the North of England, especially in the midst of the great manufacturing districts of Lancashire and Yorkshire.

Of the many successful and flourishing examples, that of Manchester occupied an honoured place. Men notable in their day as foremost in liberal movements founded the mechanics' institution in the city in 1824, and erected a building—the first designed expressly for the purpose of a mechanics' institute, which building still exists. The influence of the institution on the life of the city was great and lasting, many of its chief citizens owing all



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (ENTRANCE HALL). (See page 470.)



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (EXAMINATION
AND MAIN LECTURE HALL). (*See page 470.*)

their opportunities of educational advancement and their ultimate influence for good in the city to its various means of intellectual culture and training. It was the pioneer of many important movements, such as courses of lectures in science and literature, in which it engaged the services of many men of distinction; industrial exhibitions and exhibitions of the fine arts; popular concerts of a refined and elevated character; and experiment in the provision of day school education on modern secondary lines. Its success was such that, after 33 years of sustained and, in many respects, successful effort, the institution, with a view of still further increasing its usefulness, was removed in 1857 to a new and specially-designed building, and in this and other neighbouring buildings the technical school was carried on from 1883 until 1902.

Despite the undoubtedly beneficial influence exercised by the mechanics' institutes as a means of popular and continued education, it must nevertheless be admitted that they failed to realise the chief object of their founders and supporters—namely, the technical instruction of the working class in the arts and industries, or, to use their own phrase, “to train the working classes in the principles of the arts they practise.” This arose, in the main, from the utter inadequacy of the means and opportunities of elementary instruction, so that instead of the institutes devoting themselves chiefly to instruction in science and art, as applied to industry, they were compelled to offer lessons in the merest rudiments of education to adults. The chief purpose of the institutes remained, therefore, unachieved and impossible of achievement.

Even in 1870, to quote the words of Mr. W. E. Forster on the introduction into the House of Commons of the Elementary Education Bill of that year, “there were 16,000 children in Manchester who attended no school at all, whilst in Liverpool not only were there 20,000 in the same condition but there were another 20,000 attending schools where they got an education not worth having.” About 1880, the beneficial results of the Education Act of 1870 began to be felt. The measures inaugurated, chiefly at the instance of the late Prince Consort after the great Exhibition of 1851, for the establishment of a Department of Science and Art under the Committee of Council on Education, gradually called forth a new spirit and awoke a more intense desire with a view to increase our industrial efficiency for a better understanding of science and art in their application to manufactures and commerce. It began also to be realised that foreign industrial and commercial competition was growing more effective and could no longer with prudence be ignored.

A Royal Commission of Inquiry, of which Sir Henry E. Roscoe, F.R.S., and Mr. John Slagg, both Manchester men, were members, was sent to the Continent to inquire into the causes of the increasing foreign competition, and these inquiries were also extended, at the hands of Mr. (now Sir) William Mather, to the United States, with the result that the real cause was found, in the main, to be the efficiency of foreign educational means and methods.

A system of technological examinations had already been founded by the City and Guilds of London, and help was offered by this Association of the ancient Guilds of London for the establishment of courses of instruction, and amongst the first of the institutions to avail itself of the opportunity thus given was the Manchester Mechanics' Institution. Measures were immediately taken to enlarge the scope and to increase the means and the efficiency of the institution as a school of technical instruction. A sum of £8,000 was raised, to which the City and Guilds of London Institute, at the instance of its Secretary, Sir Philip Magnus, largely contributed; a new representative body was formed; and the name of the institution changed to that of the Technical School. With the resources above named, specialised courses of instruction for day students were organised in chemistry, engineering and in the textile industries; and it is of interest to note that, at the same time and in the same institution, the first serious attempt in this country was made to establish on the lines of the American manual training school a department for manual training for boys between 13 and 15 years of age.

The advance in the means and facilities for technical training would not, however, have been so rapid but for the passing of the Technical Instruction Act of 1889, itself the fruit of the Royal Commission aforesaid, which gave Local Authorities the power to rate their areas for the purposes of technical instruction, of which measure Manchester was the second city of the Kingdom to avail itself, or for the further even more influential Act of 1890, which placed at the disposal of Local Authorities an Imperial Grant of, at that time, nearly £800,000 per annum in aid of the Act for the promotion of technical instruction.

A movement had already been started in Manchester, inspired by the Legatees of Sir Joseph Whitworth, Bart., for the establishment of a Whitworth Institute of Art and Industry, of which the Technical School and the School of Art would form an integral part. On the passing of the before-named Acts, however, the Governors of the new Institute decided to transfer the two institutions to the Corporation, which transfer was effected in 1892.

The Royal Jubilee Exhibition, held in Manchester in 1887, also played an important part in the steps which led to the successful development of the means of technical instruction in the city. The declared object of its promoters was to devote the proceeds to the encouragement of art and industry, and with this purpose the profits, exceeding £43,000, were handed over to the newly-founded Whitworth Institute. Of this sum, £10,000 was assigned to the development of the School of Art, and nearly £14,000 as a contribution towards the cost of the erection of a new technical school.

A Committee of Inquiry had already visited the Continent on behalf of the Technical School, and subsequently on two occasions, after the transfer of the Technical School to the Corporation, further visits were made for the purpose of studying the chief institutions and their arrangements and equipment for technical training. In 1898, the Director, Mr. J. H. Reynolds, visited the United States for the same purpose. Reports were prepared of these visits, and they had a wide and influential circulation.

With the purpose of further promoting the establishment of the new Technical School, the Legatees of the late Sir Joseph Whitworth (they had previously founded and equipped, as part of the Technical School, a textile school) gave a sum of £5,000, and a plot of land situate in Sackville Street, formerly occupied by the engineering works of Sir Joseph Whitworth, 6,400 square yards in extent, to which the Corporation added a further area of 900 square yards.

In July, 1895, the erection of the new school was begun, and from that time until the end of 1902 the building of the main structure and the preparation of its equipment was in progress. As the scheme developed, it was found necessary to extend the accommodation for engineering, to provide for the generation of electric light and power and to erect a separate building for the accommodation of such branches of applied chemistry as the dyeing, bleaching, printing and finishing of textile goods, and the manufacture, dyeing and finishing of paper.

In 1901, having regard to the great importance of the School, the valuable nature of its equipment and the higher range of instruction which would be available, the title of the School was changed to that of "The Municipal School of Technology, Manchester."

On October 15th, 1902, the new building was opened in the presence of a distinguished audience by the Prime Minister, the Rt. Hon. A. J. Balfour, M.P., who, in the course of his address, referred to the School in the following terms:—"This building is

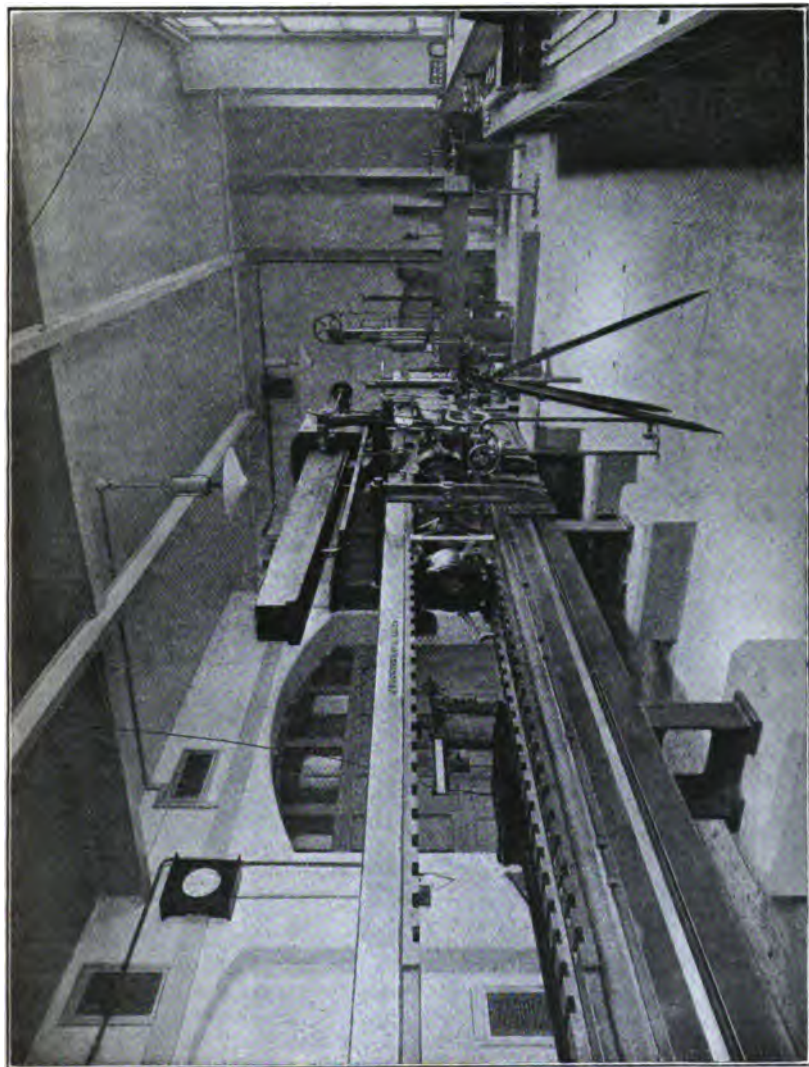
“ perhaps the greatest fruit of its kind, the greatest fruit of this
“ kind of municipal enterprise in this country nobody
“ can go over this building, observe its equipment, study, even in
“ the most cursory manner, the care which has been devoted to it,
“ without feeling that the Corporation of this great city have set
“ an example worthy of the place they hold in Lancashire, worthy
“ of the place they hold in Great Britain.”

The School, together with the building erected for dyeing, etc., and for paper manufacture opened in July, 1903, is designed to accommodate the mechanical, electrical and sanitary engineering industries, the chemical and textile industries, architecture and the building trades, printing and photography and other minor trades and industries. It is a serious attempt to place at the service of English industry an institution which shall be adequate to its needs and importance and comparable in respect of equipment with the great institutions of the Continent and the United States.

The value of the sites, structures and equipment of the two buildings amounts to upwards of £300,000; and Manchester, having regard to the resources of the Owens College for scientific training and to the Municipal School of Art (with its fine Arts and Crafts Museum) for education in art and in the application of art to industry is now second to no other city in the United Kingdom in the adequacy of its equipment, and in its facilities for giving the best possible instruction in science and art in their relation to the great industries and the world-wide commerce of which the city is the centre and life.

The Present Opportunities.

It cannot, however, be too strongly urged that the ultimate usefulness and the success of these institutions rest entirely upon the complete organisation of a sound system of secondary education, without which no adequate scientific technical and artistic training, especially for the leaders of our industries, is possible. It is gratifying to observe that the nation is at last persuaded that the organisation of an efficient system of secondary education is a matter of serious and urgent concern, and that it is recognising with increasing conviction that successful industrial and commercial competition and a high standard of manufacturing production depend much more upon the adequate training of the leaders and managers of our industries and commerce than upon that of the workmen, whose efficient education and training for their respective occupations, according to their means and opportunities, must, nevertheless, receive the most careful provision and the most earnest encouragement.



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (MATERIALS TESTING LABORATORY).
(See page 471.)



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (EXPERIMENTAL STEAM ENGINE AND

The Education Act of 1902 marks an important step towards a more complete and correlated scheme of education of all grades under the City Council, and for the first time puts at the command of the Municipality an adequate revenue for its efficient organisation and maintenance.

The establishment of the new University of Manchester gives a further most valuable opportunity of advancing the cause of higher education in the city, and of correlating the more advanced work of the School in technology with the scientific and technical studies of the Owen College, by which it will be possible to arrange for the granting of degrees to day students of the School in various departments of applied science.

The number of individual students in attendance at the Municipal School of Technology during the session, 1902-3, was 4,924, of whom 3,636 were over 18 years of age; at the Municipal School of Art, 636, of whom 459 were over 18 years of age. Of the total of 5,560 students, 3,201 resided beyond the limits of the city. In addition to the students above-named, 840 pupil-teachers received their instruction in drawing in the Municipal School of Art.

The whole of the evening schools of the city, conducted in provided and non-provided schools, are now under the Education Committee, and their science and art instruction is now strictly related with the Schools of Technology and Art. They comprise evening continuation schools, commercial evening schools, science and art schools, institutes for women and girls and miscellaneous classes. Last session they were attended by 14,795 individual students. This session there is a large increase in the number of departments and in the number of students enrolled.

Description of the Buildings and Equipment.

THE MAIN BUILDING of the School of Technology (see illustration on p. 414) is designed in the French Renaissance style of architecture freely adapted to suit the special requirements of the purpose of the School. The site is oblong in plan and of sufficient depth to allow provision for two internal areas for light and air, each 80 feet by 70 feet, by means of which the corridors on each floor are lighted. Round these corridors and lit from the streets surrounding the building are arranged the various class and lecture rooms. The building is constructed of Accrington bricks and terra cotta, with a roof of Tilberthwaite green slates, and is an imposing addition to the architecture of the city, rising six stories, and having a frontage of 260 feet by 212 feet and an area of upwards of 6,000 square yards.

Entrances.—The chief and practically the only public entrance is in Sackville Street, on the main frontage. It forms an archway 30 feet in height by 24 feet in width, flanked on each side by a screen of terra cotta and Majolica ware and leads to a spacious entrance hall (see illustration on p. 461), 4,000 square feet in area, laid in marble tiles and decorated with fine examples of antique sculpture, and thence to the main staircase. The windows of the entrance hall are in stained glass of novel and effective treatment. They are emblematic of liberal studies and enshrine the names of the master-minds of literature and science of all ages and countries, and are intended to convey the truth that all real advance in technical knowledge rests ultimately upon a generous training in the liberal arts.

In addition to the main staircase, there are also two subsidiary staircases, one at either end of the building, fitted with hydraulic and electric lifts, giving ready access to the rooms on each floor.

The Basement is one great workshop and laboratory for spinning and weaving (see illustrations on pp. 479, 480) and for mechanical and electrical engineering, including laboratories for experimental motors and dynamos, steam, gas and oil engines, refrigerating plant, hydraulic appliances and materials testing (see illustrations on pp. 467, 468), together with engineering workshops (see illustrations on pp. 493, 494). In addition, provision is made for batteries of accumulators, one of which is placed in the sub-basement, where two fans, each twelve feet in diameter, are also installed for the ventilation of the building on the "Plenum" principle. In a sub-basement, 50 feet by 14 feet, a photometer room is arranged.

The Ground Floor comprises, on the left of the main entrance, the administrative offices, the Principal's room and the Council room, the remainder of the floor being allotted to the various class-rooms and laboratories for the physics and textile departments.

The First Floor.—The principal feature of this floor is the large hall for examinations and public lectures (see illustration on p. 462), having stained glass windows emblematic of the technology of the various trades and industries; and adjoining it is the Scientific Societies' meeting room, the remainder of the floor being occupied as class and lecture rooms and by laboratories for electrical and mechanical engineering, mathematics, sanitary engineering, the lecturers' common room and by the library (which has accommodation for 30,000 volumes) and the reading room.

The Second Floor contains spacious lecture rooms, drawing rooms and laboratories for engineering, architecture and the building trades, the photographic and printing industries and electrical engineering. An experimental bakery, and the students' and refreshment rooms are also arranged on this floor.

The Third Floor.—Upon this floor are placed the organic and inorganic chemical laboratories, the principal chemical lecture theatre, laboratories for gas and water analysis and for the study chemical physics, chemical stores, the metallurgical laboratories, the laboratory for brewing, together with the sanitary engineering (see illustration on p. 494) and wood working shops.

The Fourth Floor.—On this floor are arranged the dyeing laboratories, an experimental brew house of four bushels capacity, class and work rooms for book-binding and lithographic drawing, a workshop for house painters and decorators and the gymnasium.

The Observatory, etc.—Above the fourth floor, at the north-east corner of the building, is placed the astronomical observatory, in which is installed a fine twin equatorial telescope having an eight-inch refracting instrument and a reflecting instrument with a twelve inch mirror mounted upon it.

With a view to supply the necessary power to the hydraulic machinery in the basement, a tank of 13,000 gallons capacity is placed upon the roof 100 feet from the ground.

BUILDING FOR BLEACHING, DYEING, PRINTING, ETC.—The neighbouring building designed for instruction in bleaching, dyeing, printing and finishing textile goods and in the manufacture, dyeing and finishing of paper occupies a floor space of upwards of 1,200 square yards. An illustration of it appears on p. 515, its architecture harmonising with that of the main building.

THE EQUIPMENT.—Within the limits of the space available, it is not possible to do more than describe briefly some of the chief features of the equipment of the more important departments of the School of Technology. This will, however, enable a fair idea to be formed of its nature and adaptability to the requirements of advanced technical training.

The Materials Testing Laboratory (see illustration on p. 467) is equipped with three Amsler-Laffon machines, namely, a 25 ton tension machine; a 30 ton compression machine; and a 30 ton beam-bending machine, taking beams up to 14 feet span; a 50 ton Wicksteed horizontal testing machine for specimens, nine feet long in tension or compression; and a compression press designed for a capacity of 900 tons for crushing masonry or brick piers and the like. The hydraulic plant includes three 20 h.p. turbines of the Girard, Thomson and Francis types respectively, operated from a large service tank already described. The discharge from these turbines flows over a large weir through a long channel to six volumetric measuring tanks, and is thence returned by a twelve inch twin series Gwynne centrifugal pump, driven by a 220 volt 1,000 ampère electric motor. A cast iron vee shaped channel, 110 feet long and

of a capacity equal to 3,000 gallons a minute, is provided for the study of the flow of water in pipes and channels at varying inclinations, and further appliances are also provided for the study of the flow of water through pipes, valves and cocks, and against vanes of various forms, supplied by an experimental pump capable of exerting pressure up to 300 lb. per square inch, at the rate of 300 gallons per minute.

The Machine Testing Laboratory is equipped with appliances for friction testing and for the testing of governors, dynamometers, belts, chains and ropes and their efficiency for transmitting power, for which purpose a large Von Hefner Alteneck dynamometer is provided.

The Steam Engine Laboratory.—The equipment of this laboratory (see illustration on p. 468) includes a specially-designed 400 h.p. horizontal experimental steam engine. The cylinders are respectively $11\frac{1}{2}$ and 20 inches in diameter, with a stroke of three feet, the high pressure cylinder having Corliss valves and the low pressure cylinder slide valves with Meyer expansion gear. There is also a spare $11\frac{1}{2}$ ins. cylinder of the Sulzer type. The cylinders are specially fitted for the study of wall temperatures, and for the observation and measurement of valve leakage. A fly-wheel brake, with special cooling and automatic recording arrangements, is arranged to take up the power given out. A simple high speed automatic cut-off Ball-Wood engine of 60 b.h.p., fitted with rope brake, exemplifies American practice. A plant for the study of superheated steam is also provided.

The Gas and Oil Engine Laboratory is equipped with a 20 b.h.p. Crossley gas engine, a 20 b.h.p. National gas engine and with Fielding and Platt and Hornsby-Akroyd oil engines, all of which are fitted expressly for experimental research. The laboratory also contains an ammonia refrigerating plant and a carbonic anhydride plant, each of one ton capacity. Plant is provided to enable advanced students to study the rate of condensation and re-evaporation of steam and the passage of heat across metal surfaces as affected by speed of circulation.

Other Departments.—Extensive workshops are arranged, fitted with the best types of English and American tools (see illustrations on pp. 493, 494). The mechanics' laboratory is very completely equipped for the experimental teaching of the principles of mechanics. The generating station is fitted with four 100 k.w. steam dynamos of different types and a 50 k.w. turbo-generator, and with four types of steam engines, and is so arranged as to afford opportunity in the summer months for advanced experiment and research.



THE MUNICIPAL SCHOOL OF ART, MANCHESTER (EXTERIOR VIEW). (See page 476.)



The Reading Room, November 1891

The Department of Electrical Engineering.—The equipment of this department is on a scale of considerable magnitude. There are in the building more than 100 motors, aggregating 1,250 h.p., and varying from $\frac{1}{4}$ h.p. to 200 h.p., all of which are available for testing under different conditions, and, in addition, a large equipment of motors in the dynamo rooms designed for experiment only. These comprise two two-phase alternators of 15 kw. capacity; a 20 kw. three-phase alternator of 200 volts and 50 periods, coupled direct to a 400 volt continuous current motor; a ten ton electric tram car truck, fitted with two 25 h.p. motors and controllers and mounted on friction wheels for experimental work on problems relating to efficiency and acceleration; a direct connected triple set, consisting of shunt wound motor of 60 h.p. coupled to machines having an output of 40 kw.; a three-phase generator of the rotating field type; a set of two 5 kw. rotary converters and transformers; single-phase motors of the Langdon-Davies, Oerlikon, Heyland and Fuller-Wenström types and various other types of motors. Test rooms fitted with Addenbrooke's electrostatic instruments, Duddell oscillograph, various types of photometers and standard instruments are provided. There is also a high tension room furnished with a 20 kw. transformer set, with a Stillwell regulator for voltages up to 100,000 and other transformers of various patterns.

The Department of Sanitary Engineering.—The equipment of this department includes a commodious drawing office, laboratory and lecture room, together with a well-arranged plumbers' workshop containing benches for 132 students (see illustration on p. 494). Samples of finished work are provided showing the best modern plumbing practice. Various types of sanitary appliances in general use and for special purposes are fixed and in working order, and similar arrangements are shown for water and gas supply, heating and drainage.

The Chemical Laboratories are fitted up with an ample supply of the latest appliances for chemical and physico-chemical research, including balances, constant temperature baths, apparatus for determining molecular weight and electrical conductivity, spectroscopes, spectrometers, polarimeters, goniometers, refractrometers, colorimeters, furnaces, autoclaves, wind and muffle furnaces for metallurgical work.

Department for Photography and the Printing Industries.—The equipment of this department is also on a considerable scale. It includes specially-designed and constructed cameras, with specially-arranged dark rooms for wet collodion sensitizing, wet collodion development and for dry plate and emulsion work. A

complete optical bench is provided and all the required accessories for testing photographic lenses, together with a complete equipment for various three-colour processes. A laboratory is arranged and specially fitted for etching and collotype and for the making of line and half-tone photo-engraved blocks. The plant further includes a complete equipment for letterpress and lithography, including composing room, hand and machine presses and linotype, and for book-binding.

Department for Textile Industries.—The textile equipment includes all varieties of machines for spinning and weaving cotton goods, as well as machines for throwing and weaving silk, together with a testing laboratory which includes appliances for investigating the tensile strength of yarns and cloth and for the conditioning of textile materials (see illustrations on pp. 479 and 480).

Departments for Bleaching, Dyeing, Printing, etc.—The building comprising these departments is equipped with the latest English and foreign machinery for bleaching, sizing, dyeing and mercerising raw cotton and yarn for bleaching, dyeing, singeing, shearing, mercerising and printing and finishing cotton cloth, and may be claimed as the most completely equipped institution for textile finishing in any country. It is also equipped with a paper-making plant comprising a 24 inch specially-designed Fourdrinier machine, including all accessories and a hand-made paper plant. The equipment includes a laboratory equipped with various forms of paper-testing apparatus, including tearing machines, micrometers, balances and conditioning stove; and also a powerful electric lamp of 30,000 candle power for testing the fastness of colours to light.

THE MUNICIPAL SCHOOL OF ART (see illustration on p. 473) is well equipped with a fine collection of antique casts and other means of art instruction and training, and amongst its other resources there is a fine modelling and sculpture room, an equipment for instruction in the production of stained glass, enamels and hammered metal work, together with an extensive library of standard art publications. It is the main purpose of the School to give a practical knowledge of designing, painting and modelling, more especially in the various forms of their ornamental application in association with architecture to the technical conditions of manufacture.

The Arts and Crafts Museum (see illustration on p. 474) attached to the Municipal School of Art is a department of great interest. Its erection and equipment, which have cost upwards of £14,000, are largely indebted to the munificence of the guarantors of the Royal Jubilee Exhibition of 1887, who set aside the sum of £10,000 out of the profits of that enterprise. The main purpose of the Museum

is to bring together, for the advantage and inspiration of students and craftsmen, characteristic objects of artistic skill and handicraft either original or in fine reproductions. The collection includes selected examples illustrating Italian monumental and decorative architecture, French Gothic architecture, pottery, textiles, embroidery, tapestries, stained glass, table glass, silver and other metal ware, jewellery, ivories, wood-carving, coins and medals, printed books, etc.

Courses of Instruction at the Municipal School of Technology

The courses of instruction of the School of Technology are directed more especially to the requirements of the industries of south-east Lancashire, of which Manchester is the commercial centre; but these are so varied as to include practically all the chief branches of technological study. They embrace mechanical engineering, electrical engineering and technical physics, municipal and sanitary engineering, general and industrial chemistry, including the manufacture of paper, brewing, bleaching, dyeing, printing and finishing of fabrics and metallurgy, manufacture of textiles, photography and the printing crafts, architecture and the building trades. Three years' courses are arranged in all these departments for day students, and diplomas are granted to those who satisfactorily complete the course. Day students must be at least 15 years of age at entrance and must pass an examination on entrance in English, mathematics, drawing, general science and a foreign language.

The evening courses include a greater variety of subjects, embracing the chief trades and industries of the district. Scholarships of the value of £30 per annum, tenable for three years, are yearly offered in competition to residents or ratepayers within the city.

V.—SELECTED SCHEMES OF VARIOUS LOCAL EDUCATION AUTHORITIES.

(A) SURREY.

ESTABLISHMENT OF A CONSULTATIVE BOARD.

A Consultative Board shall be established by the Surrey Education Committee for the purpose of assisting and advising the Committee on any matter *referred* to the Consultative Board by the Committee.

This Consultative Board shall be established in accordance with the terms of the following Order of the Surrey Education Committee:—

1. (i.) There shall be established a Consultative Board consisting of 24 members, appointed in the following manner:—

Four members of the Education Committee, representing university education (*i.e.*, Mr. E. J. Halsey, Sir Philip Magnus, Rev. Dr. Rendall, Rev. T. W. Sharpe, C.B.);

Six members selected from the staff instructors of the Education Committee, qualified to deal respectively with science, art, modern languages, domestic subjects, manual training and technology (*i.e.*, Mr. H. Palmer, Mr. W. H. Osmond, Mr. J. W. Longsdon, Miss Jones, Mr. S. Robertson and Mr. Herrin respectively);

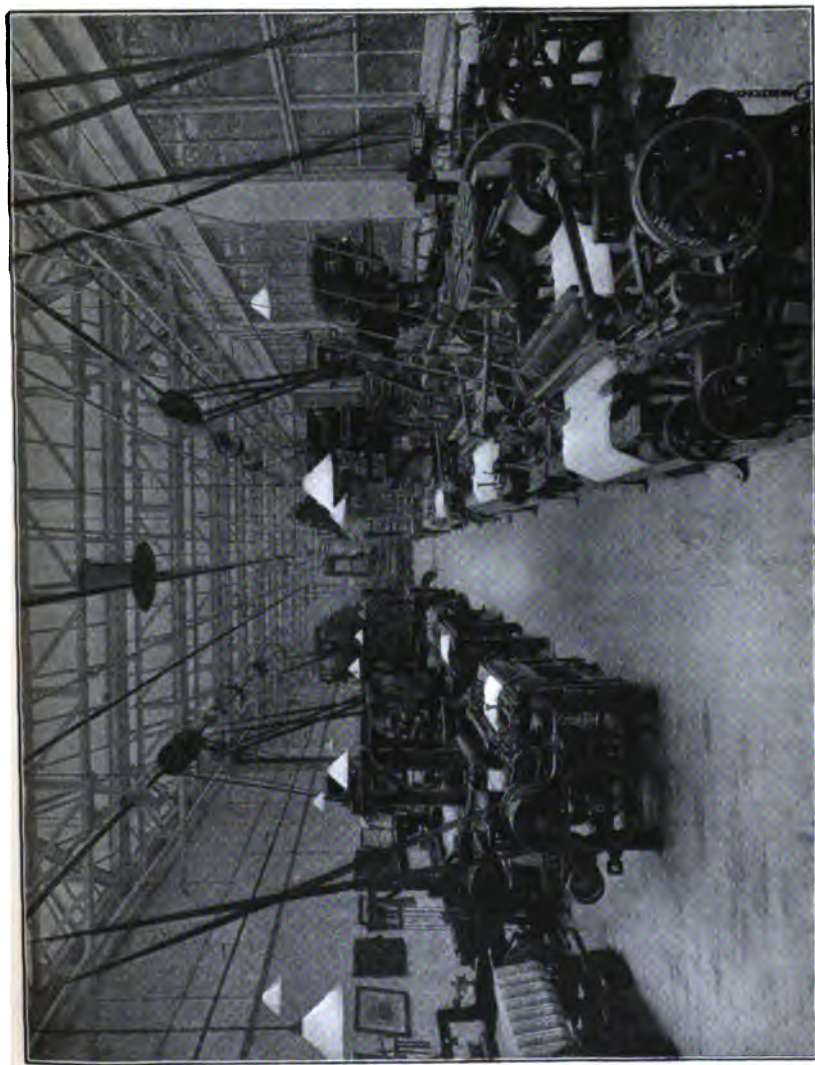
One member representative of head-masters of secondary schools (Board of Education, Class A), to be elected at a meeting called for that purpose by the Secretary to the Committee (*i.e.*, Mr. C. J. Grist, Tiffin's Boys' School, Kingston-on-Thames);

One member representative of head-masters of secondary schools (Board of Education, Class B), to be elected as above (*i.e.*, Mr. C. J. Honeybourne, Royal Grammar School, Guildford);

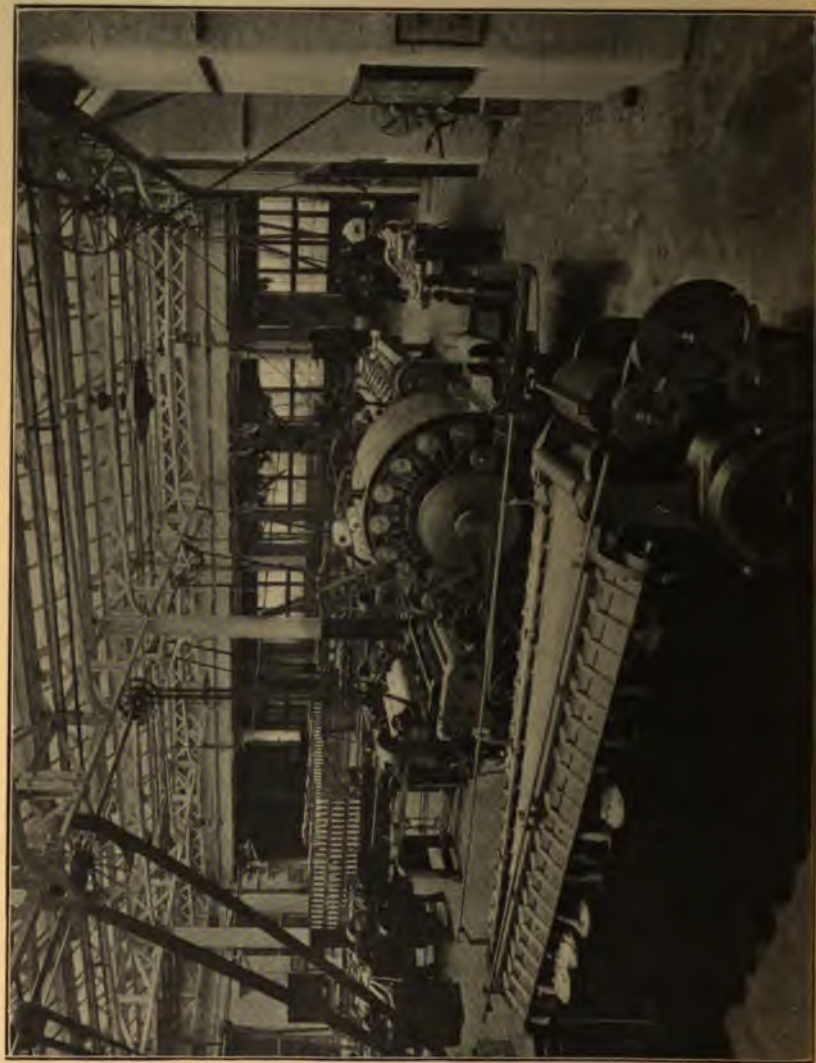
One head-mistress from Surrey secondary schools, to be elected as above (*i.e.*, Miss Hastings, Wimbledon High School);

One assistant-master, elected by the Surrey Branch of the Incorporated Association of Assistant-Masters (*i.e.*, Mr. T. E. Page, Charterhouse, Godalming);

One assistant-mistress, elected by the Surrey Branch of the Incorporated Association of Assistant-Mistresses (*i.e.*, Miss Macdonald, Wimbledon High School);



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (MAIN WEAVING SHED). (See pages 470 and 476.)



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (COTTON-SPINNING ROOM). (See pages 470 and 476).

One head-master from elementary schools, elected by the Surrey Branch of the National Union of Teachers (*i.e.*, Mr. J. Simms, Council School, Windlesham);

One assistant-master from elementary schools, elected by the Surrey Branch of the National Union of Teachers (*i.e.*, Mr. F. Farman, Lower Mitcham Council School);

One head-mistress from elementary schools, elected by the Surrey Branch of the National Union of Teachers (*i.e.*, Miss S. J. Emmerson, Council School, Badshot Lea);

One assistant-mistress from elementary schools, elected by the Surrey Branch of the National Union of Teachers (*i.e.*, Mrs. Perry, Caterham Valley Council School);

One representative of the head-teachers of evening schools, to be elected by voting papers sent round by the Secretary to the Surrey Education Committee (*i.e.*, Mr. W. G. Prescott, Holy Trinity Schools, Guildford);

Two other persons of experience in educational administration selected by the Education Committee (*i.e.*, Mr. J. Durham, Kingston-on-Thames, Rev. B. Meredyth Kitson, Barnes);

Two other persons of experience in teaching, selected by the Education Committee (*i.e.*, Rev. C. W. Bourne, King's College, Wimbledon, Mr. A. Streeter, New Malden).

(ii.) The following persons shall be the first members of the Consultative Board:—

(See names given above.)

2. (i.) Subject to the provisions of this Order as to the retirement of the first members of the Consultative Board, the term of office of a member of the Consultative Board shall be three years.

(ii.) Twelve months from the first day of the month in which the Consultative Board is appointed, eight members of the said Board shall go out of office and eight others on the corresponding day in each succeeding year, their places being filled by persons appointed by the Surrey Education Committee, and representing the same type of education as the retiring members; such new members to be nominated in accordance with the terms of 1 (i.). The names of the members of the Consultative Board to retire on any specific date to be decided by the Board by ballot.

(iii.) A person going out of office may be re-appointed.

3. (i.) The Consultative Board shall elect a Chairman, who shall hold office until the next day for the retirement of members of the Board, but, if he continues to be, or is re-appointed a member of the Board, he may be re-elected Chairman. If it think

fit, it may also elect a Vice-Chairman ; provided that, if during his term of office the Chairman ceases to be a member of the Consultative Board, the said Board shall elect a new Chairman.

(ii.) The Chairman shall preside at every meeting of the Consultative Board at which he is present.

4. Such person as the Surrey Education Committee appoint shall be the Secretary to the Consultative Board, and shall hold office during the pleasure of the Surrey Education Committee.

5. (i.) The Consultative Board shall meet at such times, and notice of meetings shall be given to the members of the said Board in such manner, as the Surrey Education Committee appoint. Travelling expenses and a luncheon allowance will be paid.

(ii.) At a meeting of the Consultative Board, *eight* shall be a quorum.

(iii.) Subject to the provisions of this Order, the Consultative Board may regulate their own procedure.

(iv.) No act or proceeding of the Consultative Board shall be questioned on account of any vacancy in their body.

6. The Surrey Education Committee may for special purposes appoint Sub-Committees of the Consultative Board, and any Sub-Committee so appointed may, within the limits authorised by the Education Committee, add to their number persons not being members of the Consultative Board.

7. If a member of the Consultative Board is absent from two consecutive meetings of the Board, except for some reason approved by the Surrey Education Committee, his office shall become vacant.

8. On a casual vacancy occurring in the Consultative Board by reason of the death, resignation or absence of a member, the Surrey Education Committee shall appoint another person in his place, such person to represent the same type of education and to be nominated in accordance with the terms of 1 (i.), and the person so appointed shall hold office until the time when the person in whose place he is appointed would regularly have gone out of office and shall then go out of office.

9. The Surrey Education Committee may fix the times of retirement of the members of the Consultative Board appointed by this Order, so that *eight* of them shall retire on the first day of—. (See 2 (ii).)

MEMO. BY REV. T. W. SHARPE, C.B.

The scheme for establishing the Consultative Board has been carefully drawn so as to include all possible sources of useful information, both for the purpose of co-ordinating the subjects of

instruction and for linking together those classes of schools which perform the same work in some considerable degree. The whole Board should meet to consider such questions, but for all other questions of a special nature, involving the discussion of separate branches of teaching, it would be well from the first to establish six Sub-Committees corresponding to the six divisions of the curriculum for which six teachers are selected from the Committee's staff of teachers; all such Sub-Committees to submit their proceedings to the decision of the full Board.

(B) WEST SUSSEX AND CHICHESTER.

(1) AGREEMENTS FOR CO-OPERATION.

I.

An Agreement made the 15th day of September, 1903, between the County Council of West Sussex (hereinafter referred to as the "County Council") of the one part and the Mayor, Aldermen and Citizens of the city of Chichester acting by the "Town Council" of the other part.

It is hereby agreed between and by the parties hereto in manner following, that is to say.

(1) The parties hereto shall make and submit to the Board of Education a joint scheme for the constitution of an Education Committee to be called the Joint Education Committee for West Sussex and Chichester to be a Joint Committee for the purposes of the Education Act, 1902, for an area formed by a combination as from the day when the Education Act, 1902, shall come into operation in the city of Chichester, but to be determinable as hereinafter mentioned of the city with the county.

(2) Such scheme shall be in the form hereunto appended subject to any modifications agreed to by the parties hereto and approved by the Board of Education.

(3) If either the County Council or the Town Council shall at any time give to the other of them not less than one year's notice requiring the dissolution of such combination, as from any 31st day of March or 30th day of September, the same shall be dissolved accordingly, and the existing West Sussex scheme,

subject to any modifications to be made by the County Council and approved by the Board of Education, shall thenceforth be in force in the county as if such combination had not been made.

(4) Provided always that, upon notice being given by either the County Council or the Town Council for dissolving the combination, the Town Council shall as soon as reasonably practicable prepare and submit to the Board of Education a scheme for the constitution of a separate Education Committee for the city of Chichester to come into operation at the expiration of the period of notice or as soon thereafter as possible ;

Provided also that the Joint Committee shall be and continue to act for all purposes as a Joint Committee for the combined area for such further period, if any, as shall elapse until the preparation by the Town Council and approval by the Board of Education and the coming into operation of a scheme for the constitution of a separate Education Committee for the city of Chichester.

(5) This Agreement is subject to the approval of the Board of Education to the scheme to be made hereunder and may be varied from time to time by the parties.

In witness whereof the County Council and the Town Council have caused their respective common seals to be hereunto affixed.*

II.

A Supplementary Agreement made the 2nd day of October, 1903, between the County Council of West Sussex, hereinafter called the "County Council" of the one part, and the Mayor, Aldermen and Citizens of the city of Chichester acting by the "Town Council" of the other part, whereby it is agreed between and by the parties as follows :—

(1) That the Joint Education Committee for West Sussex and Chichester shall present to the County Council and to the Town Council respectively a general report of their proceedings every quarter. They shall also present for approval and adoption once a year, at such time and in such detail as the County Council and the Town Council shall from time to time require, an estimate of their proposed expenditure with a statement of their receipts and expenditure to the end of the preceding year, also supplementary estimates and statements of receipts and expenditure as the County Council and the Town Council shall from time to time require.

*This Agreement is signed on behalf of the West Sussex County Council by Mr. R. B. Dell, member of the Council, and Mr. C. L. Whiteman, Deputy Clerk, and on behalf of the Chichester Town Council by Mr. J. W. L. Cooper, Town Clerk, and Mr. P. T. Mackeson, Mayor.

The Chairman of the Joint Committee shall always be a member of one of the Councils; the Secretary shall be appointed by the County Council.

(2) That, subject to the preceding Clause, all the powers of the County Council and the Town Council respectively under the Education Acts, 1870 to 1902, shall be and they are hereby delegated to the Joint Education Committee, except the power of making a rate or borrowing money, and except as follows :—

(i.) Powers as to compensation for loss suffered by abolition of office or diminution of fees or salary; (ii.) power to charge expenses under the Education Act, 1902, Section 18, Sub-section 1 (a) and (c), and to fix portion of expenses under Section 18, Sub-section 1 (d), of that Act; (iii.) power to provide a new school under Section 8 of the Act; provided that the County Council and the Town Council jointly may at any time hereafter withdraw this delegation or modify the terms of it as they shall think fit, without prejudice nevertheless to things previously done under the powers delegated.

(3) The expenses of administration of elementary education in the city and in the rest of the county for which the County Council are the authority for elementary education, and the expenses of administration of higher education in the city and the county respectively, shall, as far as practicable, be separate, and separate accounts shall be kept by the Education Committee for the county and the city respectively of the receipts and expenditure in connection therewith.

(4) Establishment expenses and other joint expenses shall be apportioned between the two areas in proportion to the separate expenditure, excluding capital expenditure on elementary education, thereon respectively or in such other manner as may be mutually agreed. The Councils respectively will provide the Joint Education Committee (subject to any limit to be fixed by such Councils respectively) with the funds considered by the Joint Education Committee to be requisite for elementary education within such areas respectively, and such provision shall be made in time to meet all claims on the Joint Education Committee as they arise.

(5) School attendance at elementary schools in the city shall be enforced by a local Sub-Committee appointed by the Joint Committee under the First Schedule, A 6, of the Education Act, 1902, to be called the "Chichester School Attendance Sub-Committee." Such Sub-Committee shall consist of eleven members, who shall be appointed by the Joint Committee on the nomination of the Town Council (and if necessary, in order that such

Sub-Committee may comprise at least two members of the Joint Committee, one or two members, as the case may require, shall be added thereto by the Joint Committee). The Chichester School Attendance Sub-Committee may, if so determined by the Joint Committee, act in addition to the area of the city for the area of the civil parish of New Fishbourne or for any portion of such parish as may be determined.

(6) The members of the Chichester School Attendance Sub-Committee shall go out of office annually on the 9th day of November, but shall be eligible for re-election and shall continue in office until their successors are appointed. Casual vacancies by death, resignation or otherwise shall be filled up by the Authority which shall have nominated or appointed respectively the member vacating office.

(7) The Chichester Sub-Committee shall have the power of appointing a school attendance officer or officers for the area under their jurisdiction, subject to the approval of the Joint Committee, and any such officer shall be dismissed, if so required, by either the Chichester Sub-Committee or the Joint Committee.

(8) In case any school or college for the supply of education other than elementary be established within the area of the city, the Town Council shall be represented on the Governing or Managing Body of such school or college in a proportion to be hereafter determined.

(9) All officers and Sub-Committees of the County Education Committee shall become officers and Sub-Committees of the Joint Committee, and all acts done by the County Education Committee previously to the coming into operation of the joint scheme shall have as full effect as if they had been done by the Joint Committee.

(10) Nothing in this agreement shall affect the operation of any resolution or direction of the County Council made or to be made as to the order or date of retirement of the county representative members or co-opted members or the time for appointing their successors.

(11) Subject to Clause (3) of the joint scheme, all powers of the Joint Committee shall terminate if and when the combination in respect of which the Joint Committee was established is dissolved.

In witness whereof the County Council and the Town Council have caused their respective common seals to be hereunto affixed.*

* See Footnote on p. 484.

(2) CONSTITUTION OF JOINT EDUCATION COMMITTEE.

Whereas by an Agreement dated the 15th day of September, 1903, between the County Council of West Sussex of the one part and the Mayor, Aldermen and Citizens of the city of Chichester of the other part, it is agreed that the parties thereto should make and submit to the Board of Education a joint scheme for the constitution of an Education Committee for the purposes of the Education Act, 1902, for an area formed by a combination as from the day when the Education Act, 1902, shall come into operation in the city of Chichester, but to be determinable as therein and hereinafter mentioned of the city with the county, such scheme to be in the form hereinafter appearing subject to any modifications agreed to by the parties thereto and approved by the Board of Education;

And whereas by a Supplementary Agreement dated the 2nd day of October, 1903, between the said County Council and the said Town Council, it is amongst other things agreed that the expenses of administration of elementary education and of higher education and the establishment and other joint expenses shall be dealt with in the manner in that Agreement appearing;

Now the County Council of West Sussex and the Town Council of the city of Chichester do hereby make the following *joint scheme*.*

(1) The scheme made by the said County Council, of which a copy is appended as a Schedule hereto, shall, as from the day when the Education Act, 1902, shall come into operation in the city of Chichester, be a joint scheme for an area formed by a combination of the city with the county, subject to the following amendments.

(2) Two persons appointed from time to time by the Town Council from among their own members, to be called "city representative members," shall be added to the Education Committee, which shall thereupon become a Joint Committee to be called the "Joint Education Committee for West Sussex and Chichester." The Town Council shall determine the period of office of the persons so to be appointed, and shall fill up casual vacancies occasioned by death, resignation or otherwise.

(3) If either the County Council or the Town Council shall at any time give to the other of them not less than one year's notice requiring the dissolution of such combination as from any 31st day of March or 30th day of September, or if the parties shall enter

* See first Footnote on p. 488.

into any fresh Agreement by which it shall be proposed to deal with the expenses of administration of elementary education and of higher education, and the establishment and other joint expenses, in a manner different to that contemplated in the Supplementary Agreement hereinbefore referred to, the combination shall be dissolved accordingly, and the existing West Sussex scheme, subject to any modifications to be made by the County Council and approved by the Board of Education, shall thenceforth be in force in the county as if such combination had not been made.

(4) Provided always that upon notice being given by either the County Council or the Town Council for dissolving the combination or upon the making of any such further Agreement dealing with expenditure, the Town Council shall, as soon as reasonably practicable, prepare and submit to the Board of Education a scheme for the constitution of a separate Education Committee for the city of Chichester, to come into operation at the expiration of the period of notice, or as soon thereafter as possible.

Provided also that the Joint Committee shall be and continue to act for all purposes as a Joint Committee for the combined area for such further period, if any, as shall elapse until the preparation by the Town Council and approval by the Board of Education and the coming into operation of a scheme for the constitution of a separate Education Committee for the city of Chichester, and that upon the coming into operation of such a scheme for the constitution of a separate Education Committee for the city of Chichester, as aforesaid, the existing West Sussex scheme shall come into operation in the county, as in Clause 3 provided.

The foregoing is the joint scheme made by the County Council of West Sussex and the Town Council of Chichester.*

SCHEDULE.†

Establishment of the County Education Committee.

(1) There shall be established as soon as may be after the approval by the Board of Education of this scheme a Committee, to be called the "West Sussex Education Committee for the purposes of Higher and Elementary Education," to consist of 27 members appointed by the County Council, of whom 18 are

* This scheme was signed on behalf of the West Sussex County Council by Mr. F. Merrifield, Clerk to the Council, and of the Town Council of Chichester by Mr. J. W. L. Cooper, Town Clerk, on the 2nd October, 1903, and approved by the Board of Education on the 28th October, 1903.

† Referred to in Article I. of the foregoing joint scheme, being a copy of the scheme made by the County Council of West Sussex on the 6th February, 1903.

hereinafter called "county representative members" and nine are hereinafter called "co-optative members," with such added members, if any, as hereinafter mentioned in Clause 5.

(2) (a) The 18 "county representative members" shall be appointed by the County Council from their own members.

(b) The nine "co-optative members" shall comprise three women, and shall consist of persons of experience in education and persons acquainted with the needs of the various kinds of schools in the administrative county.

No person shall be disqualified from being a "co-optative member" by reason of his being a member of the County Council.

(3) The first "co-optative members" shall be:—Miss Deane, President of Executive of West Sussex Ladies' Committee for Technical Instruction; Mrs. Dunlop, member of West Sussex Ladies' Committee for Technical Instruction; Mrs. Lamb, Borden Wood, Liphook, correspondent and manager of Chithurst Voluntary School; the Rev. Canon Daniel, M.A., F.C.P., member of Horsham School Board, formerly Principal of Battersea Training College for Teachers, etc., etc.; the Very Rev. J. J. Hannah, Dean of Chichester, member of Executive Committee of Chichester Diocesan Voluntary Schools Association; Mr. William Allin Hounsom, manager of voluntary schools; the Rev. Father Neave, Religious Inspector of R.C. schools in West Sussex, Vice-Chairman of Littlehampton School Board; the Rev. W. A. Upcott, Head-master of Christ's Hospital, Horsham; Mr. E. G. P. Wyatt, member of the Executive Committee of Chichester Diocesan Voluntary Schools Association.

(4) The Education Committee shall be so constituted as at all times to include persons conversant with the requirements of higher education; secondary education for boys and girls, including evening schools; technical and science and art schools; industrial education, including agricultural and any other special industries of the administrative county; education in Council elementary schools and in voluntary elementary schools.

(5) In the event of the Council of any borough or urban district within the administrative county which is as respects such borough or district the Local Education Authority for the purpose of Part III. of the Act, desiring to combine with the County Council in the constitution of a Joint Education Committee, and in the event of the County Council also desiring to combine with such Council for such purpose, an agreement or a scheme supplemental hereto may be made which shall be subject to the approval of the Board of Education. Such agreement or supplemental scheme shall prescribe the terms upon which representatives of such Councils or Council shall be added to the Committee, which shall thereupon become a Joint

Committee for the areas of all the Authorities therein represented, and, if the Council of any such borough or urban district shall relinquish powers and duties under Section 20 (b), there may be added to the Committee such one or more members appointed from time to time by the Council of such borough or urban district as may be agreed with the County Council.

(6) Every appointment of a member by the County Council shall be made at a meeting held in accordance with the practice of the County Council, and all "county representative members" (except in the case of County Councillors re-elected at the triennial election of Councillors) shall cease to be members of the Committee if they cease to be members of the County Council.

(7) One-third in number of each class of members, that is to say (i.) "county representative members," (ii.) women, (iii.) other co-opted members, shall go out of office in each year, and the Council shall determine the order of retirement of the members first appointed. The other members shall in the ordinary course retire at the end of their third year of office.

(8) All retiring county representatives and co-opted members shall be eligible for re-appointment.

(9) Casual vacancies by death, resignation, disqualification or otherwise shall be filled for the remainder of the term of office of the vacating member. A member of the Committee, if continuously absent from the administrative county for more than twelve months, shall thereupon become disqualified.

(10) Subject to the foregoing provisions, the County Council may make from time to time such Order as they shall think fit with respect to the times of election and retirement of members and all matters relating thereto.

The foregoing is the scheme made by the County Council of West Sussex at their meeting held on 6th February, 1903.

(C) STAFFORDSHIRE AND STAFFORD.

RELINQUISHMENT OF POWERS.

An Agreement dated the 8th day of August, 1903, between the Stafford Town Council (hereinafter referred to as the "Town Council") of the one part and the Staffordshire County Council (acting by their Education Committee under delegation of powers and hereinafter referred to as the "County Council") of the other part.

Whereas both the County Council and the Town Council are Local Education Authorities for the purposes of Part III. of the Education Act, 1902, and whereas the parties hereto have in pursuance of Section 20 (*b*) of the said Act mutually agreed to enter into these presents, now it is hereby witnessed and mutually agreed between the parties hereto that the Town Council relinquish in favour of the County Council their powers and duties as a Local Education Authority under Part III. of the Education Act, 1902, to the intent that the powers and duties of the Town Council as a Local Education Authority under Part III. of the said Act shall cease and that the borough of Stafford shall, so far as relates to elementary education, be part of the area of the County Council.

This Agreement is subject to the approval of the said relinquishment by the Board of Education.

In witness whereof the Town Council and the County Council have hereunto affixed their Seals the day and year first before written.*

* This Agreement is signed by Mr. Matt. F. Blakiston, Town Clerk of Stafford, and by Mr. F. E. Kitchener, Chairman of the Staffordshire Education Committee. It was formally approved by the Board of Education on the 18th September, 1903.

VI.—MISCELLANEA.

BRITISH FORESTRY.

SOME NOTES AND SUGGESTIONS.

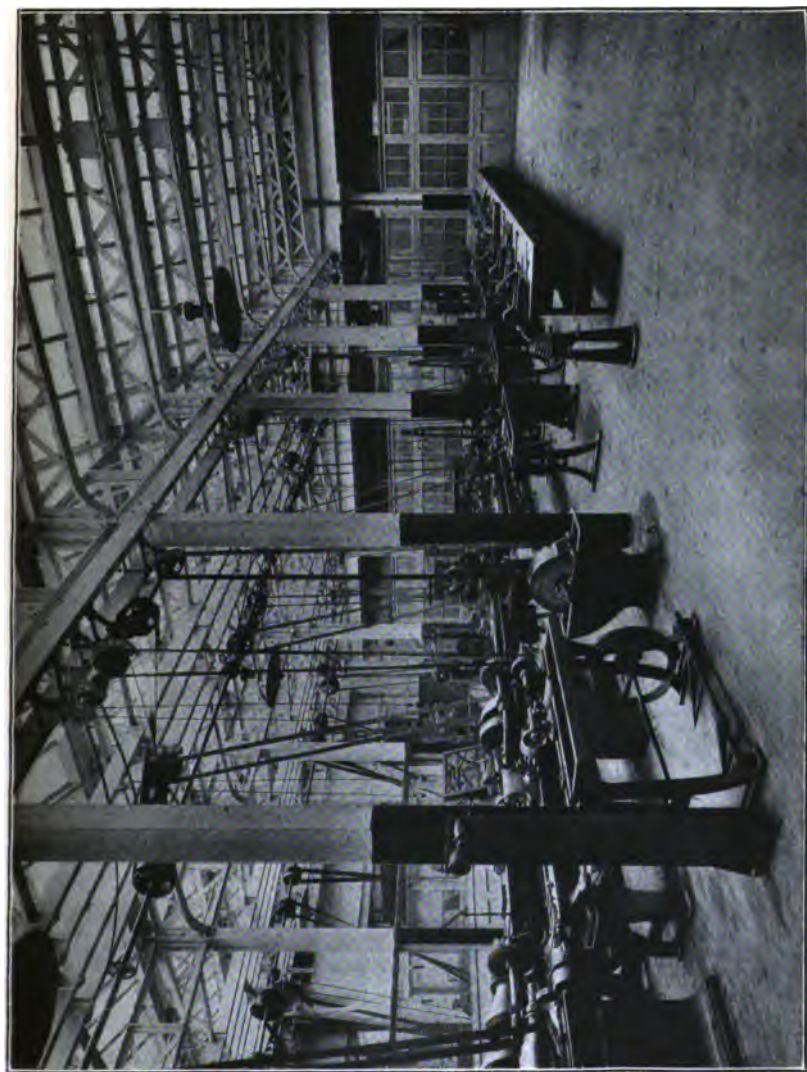
By PROFESSOR W. SCHLICH, C.I.E., Ph.D., F.R.S.

In the issue of July last the Report of the Departmental Committee on British Forestry was published, and it is thought that the following remarks will not be found out of place at the present juncture.

The President of the Board of Agriculture, in appointing the Committee, limited its inquiry to Great Britain, thus excluding Ireland.

In the report of the Departmental Committee, and more fully in the appendices, it has been shown that the requirements of this country in the shape of timber now necessitate the annual importation of some 10,000,000 tons, as against 3,400,000 tons in 1864; while the value of the imports represents now a sum of £25,000,000. The Committee point out that serious doubts exist as regards the forthcoming of future requirements, especially of coniferous timber, which comprises 87 per cent. of the total imports; and they are decidedly of opinion that something must be done to guard against a possible timber famine in the future. There were two ways open of dealing with the question: either of securing proper forest conservancy in some of the Colonies, especially in Canada, and to a less degree in Australia, or to consider what could be done at home. It was not for the Committee to make any proposals as regards the first alternative, since the self-governing Colonies are not likely to admit any interference on the part of the Home Government, even if the latter were inclined to bring pressure to bear upon the former. The great importance of systematic forest management, in Canada especially, has repeatedly been pointed out, first by Dr. Schlich in 1886, and subsequently by various other writers, but not much progress has been made in that respect.

Under these circumstances the Committee had to consider what could be done at home. Here a fruitful field for action presented itself. In the first place, the Committee drew attention to the



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (ENGINEERING WORKSHOP). (*See page 470.*)



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (PLUMBING AND SANITARY ENGINEERING)

fact that we have in Great Britain 21 million acres of waste heather and rough pasture lands, on a large portion of which afforestation could be profitably undertaken; in fact, to such an extent that practically all the ordinary timber required by the country could be produced. So far so good; but now comes the important question of ownership. If those lands, or a considerable portion of them, had been the property of the State, or other large public bodies, the Committee would not have hesitated to suggest extensive afforestation by the State authorities; but, unfortunately, practically the whole of the waste mountain land belongs to private parties, so that acquisition by the State would meet with insurmountable difficulties. To make Utopian proposals in that direction, as has been suggested by irresponsible private persons, would have led to the Committee becoming the laughing stock of all serious persons. The only sensible line which the Committee could take was to consider "what steps could be taken to enlighten the landowners as regards the practicability and profitableness of the afforestation of waste and surplus lands." Hence, on the present occasion they wisely limited their proposals to steps which have for their object the dissemination of sound knowledge on the subject, or, in other words, to make instruction in national economic forestry accessible to all classes of society who are likely to take an interest in the matter. The proposals, apart from minor points, are:—

(1) To provide instruction at our leading universities, where the sons of our large landowners prosecute their studies; many of these become landowners, while others take up the agencies of large estates;

(2) To make similar arrangements at our agricultural colleges, where young men prepare themselves for the duties of land agents;

(3) To provide the means of instructing intelligent youths in the actual work connected with forestry by going through an apprenticeship, as workmen, with the view of taking up the posts of foresters or woodmen;

(4) To provide for short courses of instruction for woodmen and others who are unable to leave their posts—a matter specially recommended to County Councils.

Those who have studied in the field the questions here involved are aware that forestry is not an industry which, rare cases excepted, is capable of yielding a large percentage on the invested capital. On the contrary, to make it yield a fair interest, it is necessary that the proprietor should have an intelligent understanding of, and his manager and woodman be skilled in, the work and acquainted with the best methods of creating,

tending and managing woodlands, so that the best possible results are obtained with the least possible expenditure. Such results can only be obtained by the application of sound silvicultural principles; hence, the first and foremost requirement is to provide proper means of instruction in silviculture and the rational management of woodlands. If we succeed in establishing these, the rest will follow as a natural consequence.

In Ireland, however, a somewhat different policy might be followed now that the Irish Land Bill has become law. In addition to providing the necessary instruction, the Irish Government might constitute a considerable area of State forests. In breaking up large estates there must be considerable areas which it is not necessary to include in the farms to be acquired by the tenants. Such areas might be retained by the State and converted into State forests. The lands here under consideration are of very small value, frequently not worth more than threepence an acre a year. If a sufficient area of that class of land were secured, and a properly equipped department organised, the undertaking could easily be made to pay a fair interest on the outlay, and a great benefit would be bestowed upon the country, as much additional labour would be required, and hereafter a variety of local industries would spring up which require forest produce as their prime material.

It is satisfactory to learn that several of the Committee's suggestions have already been adopted. An extended course of forestry instruction has been organised at the Royal Agricultural College, Cirencester, and the establishment of a lower grade school for the training of woodmen in the Forest of Dean has been sanctioned by the Treasury, thanks to the enlightened views of the Senior Commissioner of Woods; that school is about to be opened. Let us hope that the Universities of Oxford and Cambridge will soon bestir themselves in the matter. The latter University has already an agricultural department, and similar arrangements could easily be made for forestry.

THE ORGANISATION OF A RURAL TECHNICAL SCHOOL.

AN UNIQUE EXPERIMENT IN THE SCOTTISH HIGHLANDS.

Introduction.

One of the boldest experiments that have yet been attempted in educational work is now in a fair way of becoming *fait accompli* through the energies of the Duchess of Sutherland. This is nothing less than the establishment, near the little seaside town of Golspie, in the county of Sutherland, of a highly-organised technical school to serve the remote Highlands of Scotland. The school will be quite a new feature in the educational methods of the country, and, if its career does not lead to further developments upon similar lines, it will always remain as an object-lesson of great value for the future guidance of those who are really anxious to provide suitable practical training to meet the varied needs of the population. It would seem that there is every possibility of the fulfilment of the hope that the unique experiment at Golspie will altogether achieve the high objects and approach the ideals of its promoters.

It was towards the close of the year 1901 that the inception of the scheme was made known publicly, and on the 8th September last the ceremony of laying the memorial stone took place. Thus, in less than two years a real beginning has been made to accomplish the objects in view, and this, be it remembered, entirely by private initiative, which, however, has called forth a promise of a considerable measure of support by the Local Authority—the Technical Education Committee of the County Council. In order to properly appreciate the difficulties connected with the starting of a school of the kind in such a remote and thinly-populated district, it should also be borne in mind that provision had to be made not only for the cost of the building but also for the annual maintenance and the free education of the pupils, who would naturally be the children of the poorer classes.

The Local Conditions and the Curriculum.

The local conditions in the northern counties of Scotland, to which regard must be had in framing the curriculum, chiefly concern small mechanical trades and industries where manual skill

must be combined with accuracy of eye; agriculture of the "crofting" type, *i.e.*, in relation to small agricultural holdings; and, perhaps, navigation. While the details of a curriculum suitable for these diverse requirements can mainly be devised by actual experience only, the subjects of instruction will probably include mathematics, branches of drawing, theoretical and applied mechanics, manual training in wood and metal, chemistry and physics, elementary botany and zoology in their bearing upon agriculture (accompanied by practical demonstrations upon arable land and garden plots) and the ordinary literary and humanitarian subjects continued from the stage left by the training in the elementary school. It is intended that the school curriculum should extend over a period of at least three years. In the very nature of the case the age of admission will not be made rigid, 13 to 17 years of age being named as within the range. Qualification rather than age will be the test exercised in the earlier stages of the school, a guarantee being given that the pupil has satisfactorily passed the Standards in the elementary school, and later on, when the school becomes full, admission will be by competition. The cost of the pupils' maintenance will be met by bursaries of the value of £30 per head per annum. The fees for any out-students who might apply to attend the course of instruction would amount to about £6 or £8 a year.

A head-master or principal for the school is now being sought, who will be expected to teach science as well as to generally supervise the institution. It is stipulated that he must possess some practical knowledge of agriculture and practical science, and have high attainments in at least two branches of science. The salary offered is £350 a year with a house (see p. 502).

An Advisory Committee, chosen from leading educationalists and representatives of Highland Associations, has been formed. It is proposed also to constitute a Board of Management for the school, and to secure co-operation with the Board from the Chairman of each School Board in the counties concerned.

In the speeches delivered at the ceremony of laying the foundation-stone, valuable references were made to the character of the school and to the problems which it will, in some measure, seek to solve. The then Secretary for Scotland, Lord Balfour of Burleigh, said: "It is a school expressly designed for the needs and wants of the district in which we are met. Its curriculum will be based on a careful study of the condition of things as they now exist, and will have a direct reference to the special wants and wishes of those in the district around. . . . I think I am not wrong in claiming for this departure on the part of its promoters that it is



FRONT ELEVATION

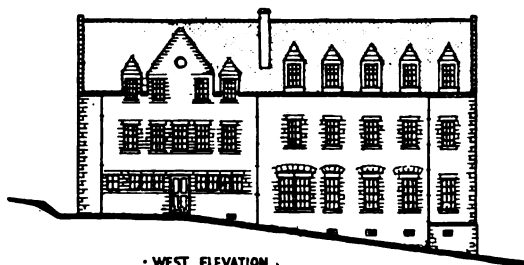


NORTH ELEVATION

THE SUTHERLAND TECHNICAL SCHOOL, GOLSPIE, N.B. (*See page 502*).



· EAST ELEVATION ·



· WEST ELEVATION ·

THE SUTHERLAND TECHNICAL SCHOOL, GOLSPIE, N.B. (*See page 502*).

" to be a new fact in the educational history of our country. This
 " school is not merely a copy—still less is it intended to be a rival
 " of other educational agencies and institutions, whether they be
 " of an elementary or of a higher or secondary type. It is an
 " intelligent effort and a new attempt to solve a difficult problem,
 " and one which never was more difficult than it is to-day, as to
 " whether you can, in regard to any given population, living under
 " certain given conditions, which perhaps cannot in the district be
 " much altered, give education and ameliorate for them those
 " conditions, and, if so, what kind of education will best do it. In
 " this matter the promoters have set themselves not to consider
 " codes or grants or examination successes. That is not the object
 " for which they are establishing this institution. They know the
 " population and they know its wants, and they are making an effort
 " in the light of their own experience to supply those wants in their
 " own way. Some will say that the problem before the school is
 " an insoluble one: that no education will benefit those whose lot
 " is cast in somewhat difficult circumstances and in remote
 " places. Others, on the other hand, will put forward extravagant
 " expectations that will result from education. The views of the
 " promoters of this scheme lie between these two extremes.
 " They are able to point to the experience of other countries where
 " technical education agencies have been instrumental in retaining
 " people on a sterile soil much worse than that of great parts of the
 " counties at home and in increasing their prosperity and enjoyment
 " in life. They do not propose to transplant wholesale an institution
 " like that doing work in another country. But they propose to
 " study the principles upon which these institutions are founded,
 " to judge whether and how far these principles will be successful
 " and to proceed cautiously upon new and untried lines and to
 " gain experience as they go along. The school will be residential,
 " which will render possible certain forms of practical instruction
 " for which there is and can be but little opportunity in a day
 " school. Pupils will not be received until they have acquired in
 " the day school a sound knowledge of elementary subjects and
 " give promise of mental and physical vigour, essential for the
 " special studies of the school. The general education of the
 " pupil will be continued in due measure. The practical work,
 " which will be the school's distinguishing feature, will rest
 " throughout on a basis of reasoned theory. The establishment of
 " the school will do something to enlarge the educational horizon
 " of the Highlands, and has opened out the prospect of Highland
 " boys passing with suitable preparation to the technical or
 " agricultural college, the school of art and even the universities.

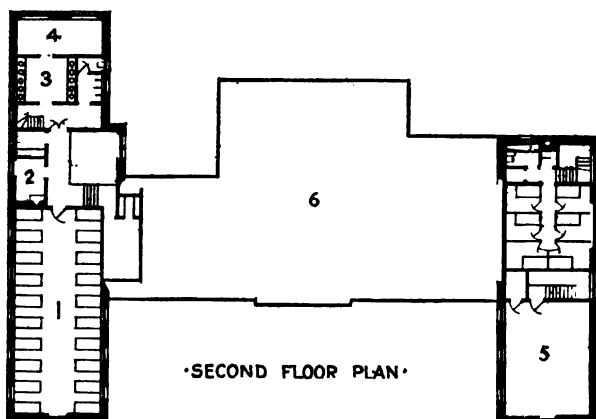
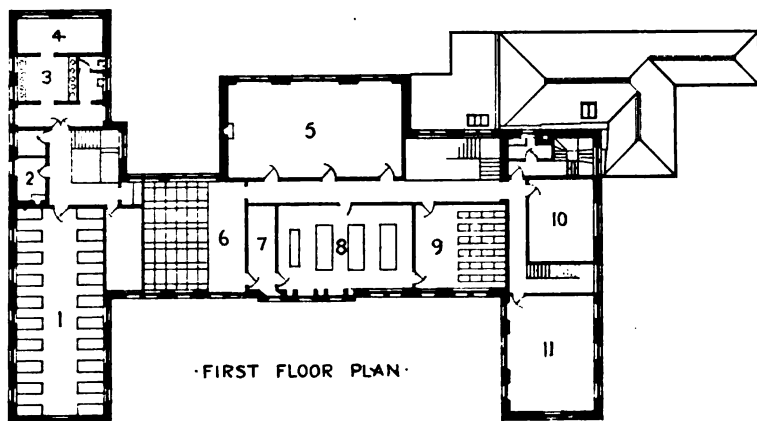
"The school is an experiment, a highly-desirable and promising experiment, but not one upon which any Local Authority could itself venture. Nor could the Education Department do it, much as we approve of the proposal. It is work for private initiative, for private enterprise and for individual enthusiasm."

The Duchess of Sutherland herself also said on the occasion :—
"The Advisory Committee, who are sharing the responsibility of the school, are alive to every possibility and anxious to make the best use of every opportunity. All the money for the building fund had been secured. A sum of £500 was promised towards the equipment fund and about £1,200 a year paid and promised in the form of bursaries of the value of £30 for 40 scholars. There was building accommodation for that number and class-rooms for a good many more. About £800 a year was still required towards the maintenance of the school for the first year or two. It was important that a school of the kind should have the very best teachers for the different departments. It was just because the school was small, rural, isolated and unique that it should be equipped in the most perfect way."

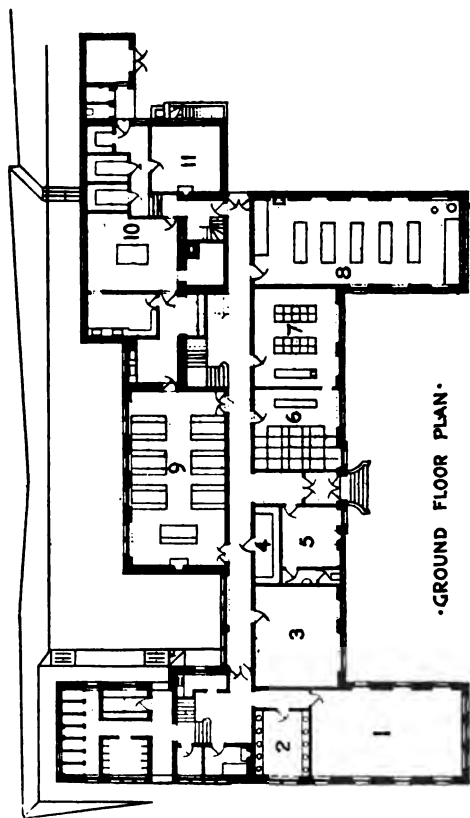
The Site and Buildings.

The site, of which a plan is given on p. 506, has been well chosen on the crest of a slope commanding an unexcelled woodland and sea view, in surroundings of the healthiest description, and it possesses every adjunct for proper sanitation. It was given by the Duke of Sutherland. The village of Golspie, which it abuts, is in a central position in regard to the district to be served, being half-way between John o' Groats and the southern boundary of Ross-shire. The site is also suitable for giving opportunity for studying agricultural questions under varying climatic conditions.

The sketches, appearing on pp. 499-500, of the several elevations give a good idea as to the character of the building. "Drummie House," shown on the ground (block) plan, forms part of the school property: it is delightfully situated and surrounded by trees, and is intended as the residence of the principal of the school. The foundations have been laid according to the most approved principles, provision being made for the total exclusion of damp and all the rooms will be large and airy and thoroughly ventilated. The building is shaped somewhat like the letter H, and covers an area of 1,160 square yards or nearly a quarter of an acre. The total length of frontage is 146 feet, with an extension of 39 feet more at the back. The height of the main building, which is two-storeyed, is 47 feet from the



THE SUTHERLAND TECHNICAL SCHOOL, GOLSPIE, N.B. (See page 507.)



•GROUND FLOOR PLAN•

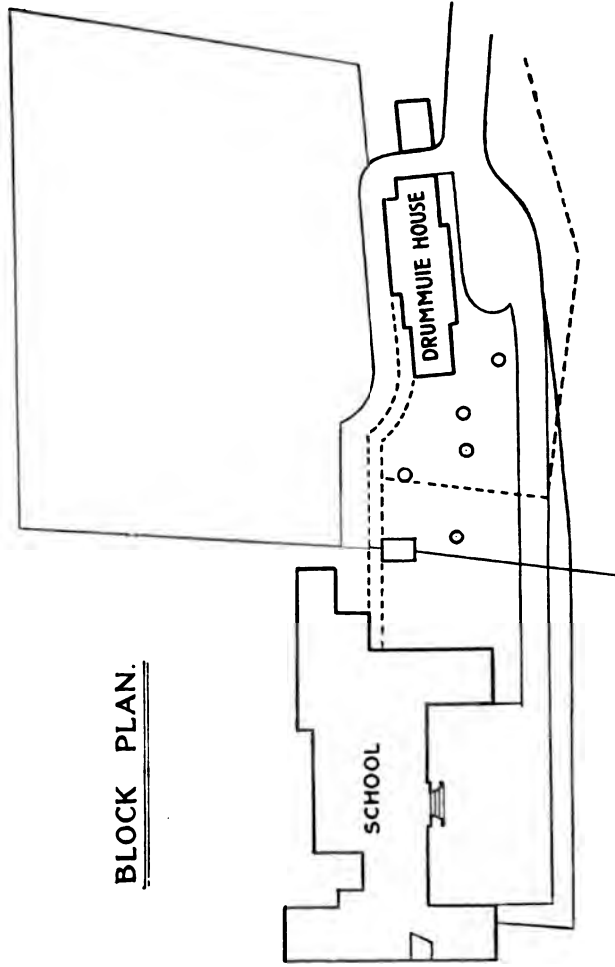
ground to the ridge of the roof; the east and west wings are carried up another storey, being $53\frac{1}{2}$ feet high. The width of the body of the building, from south to north, is 54 feet; the west wing is 100 feet and the east wing is 94 feet long—north to south. The heat will be generated by means of hot-water pipes from boilers in the heating chamber at the east end of the building. The architects for the buildings are Messrs. Dick Peddie and Washington Browne, 8, Albyn Place, Edinburgh; and the contractors are Messrs. Murray and Co., Brora. The building may possibly be completed about the latter end of next summer, and the cost of the same will be borne by the Duke of Sutherland and Mr. Andrew Carnegie, of Skibo Castle, the latter giving a sum towards the building fund and a further £3,000 for equipment, etc.

The total number of rooms, including kitchen, offices and servants' cubicles, the latter being on the second floor of the east wing of the building, is 56, viz.: on the ground floor, 23; on the first floor, 15; on the second floor, 16; cistern rooms (one each in east and west wings above the second floor), 2. There are 14 class-rooms in all, including a workshop, laboratories, museum, etc. The kitchen offices, which are only one storey in height, are established at the north-east end of the building and will be discerned in the sketch of the north elevation. The dormitories are situated on the first and second floors of the west wing, and adjacent are the bath-rooms and lavatories; each dormitory accommodates 20 pupils. The dining-room will have tables to seat 60. The main corridor, on the ground floor, is 135 feet long and that on the first floor, 66 feet long. The following is a summary of the measurements of the principal rooms noted in the accompanying sketches of the plans of the three floors (see pp. 503-4):—

GROUND FLOOR PLAN.

No. on Plan.	Room.	Size of Room.			
		ft.	in.	ft.	in.
1.	Day Room	36	6	by	21 0
2.	Lavatory.....	16	0	„	13 0
3.	Library	24	10	„	20 0
4.	Stationery	19	0	„	6 0
5.	Principal's Room	15	3	„	14 6
6.	Lecture Room	20	1	„	20 0
7.	Physical Laboratory	24	4	„	20 0
8.	Workshop	50	0	„	21 0
9.	Dining-room	43	0	„	22 9
10.	Kitchen	22	0	„	18 4
11.	Servants' Hall	17	0	„	16 6

BLOCK PLAN.



THE SUTHERLAND TECHNICAL SCHOOL, GOLSPIE, N.B. (See page 502).

FIRST FLOOR PLAN.

No. on Plan.	Room.	Size of Room.			
		ft.	in.	ft.	in.
1.	Dormitory	50	0	by	21 0
2.	Master's Room	10	6	„	7 0
3.	Lavatory.....	14	6	„	11 0
4.	Bathroom	21	0	„	18 6
5.	Art Class-room	43	0	„	22 9
6.	Lecture Room	26	0	„	25 0
7.	Preparation Room	20	0	„	7 0
8.	Chemical Laboratory	33	3	„	20 6
9.	Class-room	22	6	„	20 0
10.	Museum	20	0	„	16 0
11.	Biological Laboratory	28	0	„	21 0

SECOND FLOOR PLAN.

No. on Plan.	Room.	Size of Room.			
		ft.	in.	ft.	in.
1.	Dormitory	50	0	by	21 0
2.	Master's Room	10	6	„	7 0
3.	Lavatory.....	14	6	„	11 0
4.	Bath-room	21	0	„	18 6
5.	Gymnasium	27	9	„	21 0

PUPILS IN SECONDARY SCHOOLS.

THE POSITION IN STAFFORDSHIRE.*

Preliminary Remarks.

Steps have been taken with the object of collecting particulars as to existing secondary schools in and on the borders of the administrative county, and the following preliminary report has been submitted to the Committee by the Director :—

The statistics given below are compiled from the very full returns from the secondary public schools in the county made in response to inquiry forms issued by the Committee in May, 1903. The expression “public schools” here includes all schools maintained in whole or part out of public money or endowments, and includes

* Report upon Secondary Schools in Staffordshire by the Director of Education (Mr. Graham Balfour, M.A.), extracted and elaborated from the Quarterly Report of the Education Committee, adopted 11th July, 1903 (see Editorial Notes, p. 407).

all schools which are not carried on for private profit. The returns from private schools are not so complete: although a large majority of the principals of private schools have very kindly given all the information required, it has been impossible to utilise these in a table, since no replies have been received from a few schools and returns from others have been incomplete. It has been found impossible to obtain a complete and trustworthy list of private schools of a secondary character within the county; it is conceivable, therefore, that a few small schools have been omitted which ought to have been included, and that others have been treated as secondary which in reality are elementary. Any effect on the total figures is, however, small, and cannot affect the general average.

In a short time it will, perhaps, be possible to obtain numbers for comparison from other counties; at present there are various calculations and figures available, including those obtained by the London Technical Education Board for the whole of the area under their control.

The Statistics.

WITHIN THE ADMINISTRATIVE COUNTY.—Total number of pupils in *public* schools *within* the administrative county:—boys, 933; girls, 489 (see classification on pp. 509-10); total, 1,422. Number per 1,000 of the population:—boys, 1·06; girls, ·55; total, 1·61.

Number of pupils in *private* schools *within* the administrative county:—boys, 132; girls, 412; total, 544. Number per 1,000 of the population:—boys, ·15; girls, ·47; total, ·62.

The total number of boys and girls in both *public and private* schools *within* the county is 1,966, corresponding to 2·23 per 1,000 of the population.

AROUND THE ADMINISTRATIVE COUNTY.—Total number of pupils from the administrative county attending *public* schools *without* but on the borders of the county or in county boroughs:—boys, 664; girls, 316 (see classification on pp. 509-10); total, 980. Number per 1,000 of the population:—boys, ·76; girls, ·36; total, 1·12.

WITHIN AND AROUND THE ADMINISTRATIVE COUNTY.—The total number of boys and girls *residing in* the administrative county and attending secondary schools is 2,946—boys, 1,729; girls, 1,217. The number per 1,000 of the population is 1·97 for boys and 1·38 for girls, giving a total of 3·35.

Number of pupils *from without* the administrative county attending secondary schools *within* the county:—boys, 431; girls, 181; total, 612.

Estimates and Comparisons.

The following are various estimates (per 1,000 of the population) of children requiring secondary education:—Dr. Farr (Schools Inquiry Commission Report, 1867)—boys, 12·55; Mr. Richmond (Schools Inquiry Commission Report, 1867)—boys, 12·28; The Commissioners—in towns, boys, 16, in country districts, boys, 10; Sir Henry Longley—boys, 9·3, girls, 5·4; Dr. Fitch—boys, 7·5, girls, 5·5; average, boys, 11·2, girls, 5·45.

From inquiries in Lancashire for the purposes of the Secondary Education Commission (1894), Mr. Kitchener gives the following numbers (Report of Royal Commission on Secondary Education, Vol. VI., p. 234):—Rochdale—boys, 2·5, girls, 4; Bury—boys, 4, girls, 4; Bolton—boys, 3, girls, 3; Oldham—boys, 1, girls, 1; Wigan—boys, 4·5, girls, 3·5; Ashton—boys, 3, girls, 2. The average for these Lancashire boroughs is—boys 3, girls 2·9, giving a total of 5·9. The corresponding number for Staffordshire is 3·35. So great a deficiency can only be reduced by the provision of increased opportunities for secondary education in the thickly-populated divisions of the county.

A comparison with the London figures is quite as unfavourable to Staffordshire. The average result for London is 3·4 per 1,000 of the population for boys and 2·8 for girls, giving a total of 6·2 for both. The maximum, minimum and mean figures for London, and the figures for Staffordshire, are as follow:—

	Per 1,000 of the Population.		
	Boys.	Girls.	Total.
London:—Maximum (Lewisham)..	9·45	10·08	19·53
Mean	3·4	2·8	6·2
Minimum (Shoreditch)..	·65	·58	1·23
Staffordshire:—At schools within			
the county area...	1·21	1·02	2·23
At schools without			
the county area...	·76	·36	1·12

} 3·35

Conclusions.

It seems clear that there must be large districts in Staffordshire in which the figures are lower than the minimum figures for London, but that there can be no district in which the figures approach the maximum figures, and probably no district in which the mean figures are approached: but it will be possible to obtain clearer information from a more detailed analysis.

It is of interest to note that of the 489 girls from the administrative county in public schools *within* the administrative county, 239 are

at the Orme Girls' School, Newcastle; and that of the 316 girls in public schools *without* the administrative county, 197 are at the Birmingham schools under the King Edward VI. Foundation.

These figures obviously show a very grave deficiency in the provision for secondary education in this county, more especially so far as the education of girls is concerned. The county is partly being educated at the expense of the endowments of its neighbours, and to a very large extent is not being educated at all. Undoubtedly before any approach, not merely to an adequate system of secondary education, but even to bring up the supply to the average level of the country can be made, great sacrifices will be needed from each separate locality and also from the administrative county as a whole.

DIRECTORS AND SECRETARIES FOR EDUCATION IN ADMINISTRATIVE COUNTIES AND COUNTY BOROUGH IN ENGLAND AND WALES.

SUPPLEMENTARY LIST OF APPOINTMENTS UNDER THE EDUCATION ACT, 1902.*

I.—ADMINISTRATIVE COUNTIES.

BEDFORDSHIRE	<i>Director</i> : Mr. Frank Spooner, Shire Hall, Bedford.
CARMARTHENSHIRE..	<i>Clerk to Committee</i> : Mr. J. W. Nicholas, County Offices, Carmarthen.
CARNARVONSHIRE ...	<i>Secretary</i> : Mr. Evan R. Davies, County Education Offices, Carnarvon.
CORNWALL	<i>Secretary for Elementary Education</i> : Mr. Frederick R. Pascoe.
DERBYSHIRE	<i>Assistant Secretary for Elementary Education</i> : Mr. A. L. Jenkyn Brown, B.A., County Offices, Derby.

* See remarks in the Editorial Notes on p. 410.

- DORSET .. *Assistant Secretary*: Mr. W. J. Donald, County Education Office, Dorchester.
- FLINT *Director*: Mr. J. Bevan Evans, M.A.
- GLAMORGANSHIRE ... *Director*: Dr. John James, B.A., B.Sc., Education Department, Westgate Street, Cardiff.
Organising Agent: Mr. Walter Hogg, Education Department, Westgate Street, Cardiff.
- HERTFORDSHIRE ... *Secretary for West Herts., for Agriculture and for Higher Education*: Mr. Albert Dean, Eastfield, St. Albans.
- ISLE OF WIGHT ... *Clerk to Committee*: Mr. F. G. Flux, County Education Offices, Newport.
Organising Secretary for Higher Education: Mr. John D. Custance, 20, Holyrood Street, Newport.
- NORTHAMPTONSHIRE *Secretary*: Mr. Byron R. Simpson, County Hall, Northampton.
Assistant Secretary: Mr. W. Dawson Sadler, M.A., County Hall, Northampton.
- SOKE OF PETER-
 BOROUGH *Clerk to Education Committee*: Mr. Walter J. Deacon, Education Department, County Council Offices, Peterborough.
- YORKSHIRE *Legal Adviser*: Mr. W. C. Trevor (Clerk to (NORTH RIDING) County Council), Northallerton.

II.—COUNTY BOROUGHES.

- BRADFORD *Secretary*: Mr. Thos. Garbutt, Education Offices, Manor Row.
- BRISTOL *Assistant Secretary for Higher Education*: Mr. W. H. Doyle, Higher Education Department, Council House.
- CROYDON *Clerk to Committee*: Mr. James Smyth, Education Office, Katherine Street.
- DERBY *Secretary*: Mr. Wm. Cooper, Education Offices, Becket Street.
- EXETER *Clerk to Committee and Correspondent for Elementary Education*: Mr. H. J. Morgan, Education Office.
Correspondent for Higher Education: Mr. G. R. Shorto, Education Office.

- HANLEY** *Assistant Secretary*: Mr. F. H. Hand, Town Hall.
- HUDDERSFIELD** *Secretary*: Mr. George Gaunt, Education Offices, Peele Street.
- HULL** *Secretary*: Dr. J. T. Riley, Education Offices, Albion Street.
Assistant Secretary for Elementary Education: Mr. Hards.
- IPSWICH** *Secretary*: Mr. J. H. Hume, Education Offices, Tower House, Tower Street.
- NEWCASTLE-ON-TYNE** *Secretary*: Mr. Alfred Goddard, Education Offices, Northumberland Road.
- NORTHAMPTON** *Clerk to Committee*: Mr. Stuart Beattie, Education Offices, St. Giles' Street.
- NORWICH** *Principal of Technical Institute and Organiser of Higher Education*: Mr. Frank H. Newman, B.Sc.
Organiser of Elementary Education and Inspector of Schools: Mr. D. O. Holme.
- NOTTINGHAM** *Clerk*: Mr. W. J. Abel, Education Offices, Victoria Street.
- OLDHAM** *Secretary*: Mr. James Rennie.
- PLYMOUTH** *Assistant Secretary for Secondary Education*: Mr. T. W. Byfield, Education Offices, 18, Princess Square.
Assistant Secretary for Elementary Education: Mr. G. W. Wherry, 18, Princess Square.
- PRESTON** *Director of Education*: Mr. A. J. Berry, M.A., B.Sc.
- ROCHDALE** *Secretary*: Mr. E. J. Holden, Education Offices, Baillie Street.
Clerk for Technical Instruction: Mr. A. Barnish, Municipal Technical School, Nelson Street.
- ROTHERHAM** *Secretary*: Mr. W. H. Corbridge, Education Offices, Municipal Buildings.
Director of Higher Education: Mr. G. H. Burkhardt, M.Sc., Education Offices, Municipal Buildings.
- STOCKPORT** *Secretary for Education*: Mr. Arthur Lawton, B.A., *Principal of Municipal Technical School and Clerk to Technical Instruction Committee*: Mr. R. J. Brown, M.Sc.

- SUNDERLAND*Director of Higher Education*: Principal B. Branford, Municipal Technical College.
- WEST BROMWICH...*Secretary to Committee and for Higher Education*: Mr. J. E. Pickles, M.A., B.Sc., Education Offices, High Street.
- WEST HARTLEPOOL *Secretary for Secondary Education*: Mr. J. G. Taylor, Education Offices, Park Road.
Secretary for Elementary Education: Mr. J. Robson Smith, Education Offices, Park Road.
- WIGAN*Secretary*: Mr. J. W. Horne, Education Offices, Victoria Buildings, King Street.
- YORK*Secretary*: Mr. C. G. Rushworth, Education Offices, Clifford Street.
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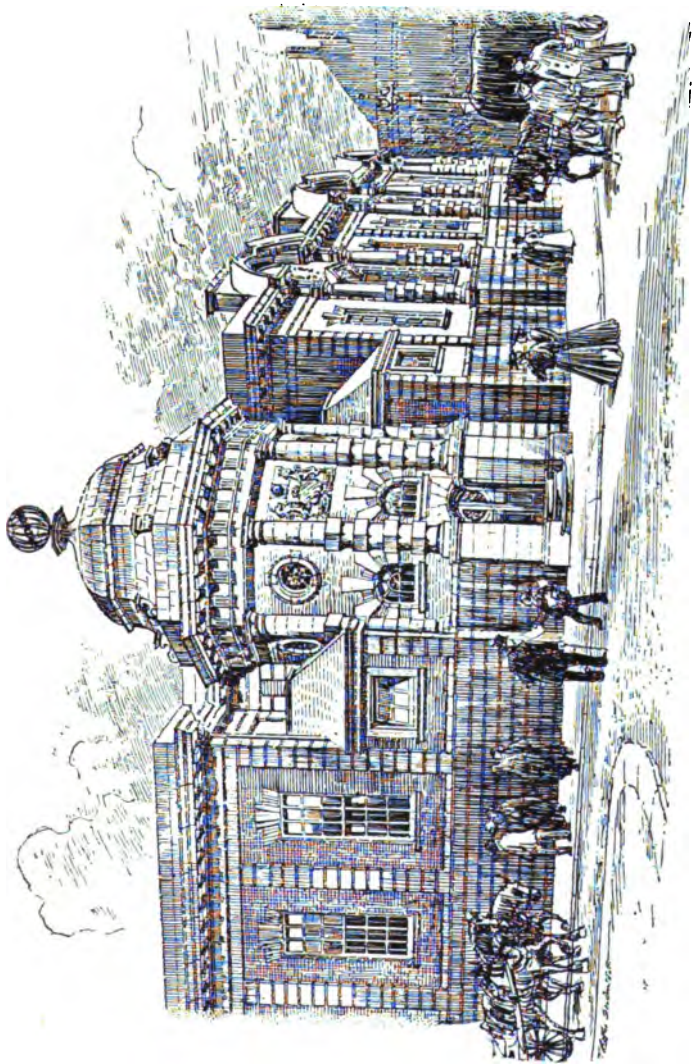
VII.—REVIEW.

SOME RESULTS OF THIRTEEN YEARS' WORK IN GLOUCESTERSHIRE.*

The work accomplished during the last 13 years through the instrumentality of the late Technical Instruction Committee of the Gloucestershire County Council is reviewed in an interesting manner by the Chairman (Mr. M. W. Colchester Wemyss). At the outset, a summary of the expenditure during that period is given. This reached a total sum of nearly £84,000, practically half of which was distributed in grants to support recognised centres of instruction and under the supervision of responsible committees, not including, however, an amount of over £4,000 allocated to 48 smaller centres. Thus, quite 56 per cent. of the available funds was utilised for promoting technical education through the system of delegation to local bodies. The remaining 44 per cent. of the money reserved under the direct method of organisation was devoted to specific objects in the following proportions:—agriculture and dairy work, 10½ per cent.; scholarships, 10½ per cent.; domestic science (including ambulance and nursing), 10 per cent.; capital charges, 6 per cent.; teachers' training, 3½ per cent.; carving instruction, 1½ per cent.; mining instruction, 1½ per cent.; expenses of central administration, ½ per cent. But it should be noted that after the first seven years a considerable change was wrought in the method of organisation, although the plan of delegation was still largely pursued. The Chairman makes both these points quite clear in his review, which is certainly a most impartial one, neither screening failures nor magnifying success. The following is an abridged account of the general policy followed throughout:—

General Policy.—At first the Committee adopted the principle of carrying education to the students by establishing classes in a great many places; of late years this system has been modified, and large grants have been made to certain centres, the intention being to concentrate educational power in specially selected localities. This makes it possible to give a more serviceable form of education, the larger expenditure allowing of the engagement of better qualified teachers and of the supply of better class-rooms, laboratories and apparatus. The power to spend has been further increased by the fact that local generosity has in many cases been heartily stimulated, thus placing a much larger sum of money at the disposal of many of the local committees. These centres were intended not only to serve as well-equipped installations, to which students could come from their own more or less remote homes, but also to send out teachers to hold classes in the surrounding neighbourhood, these classes serving as feeders to the central institutions. There is no doubt the first system was more or less of a failure, but no great amount of money was wasted. The second system is the one now in existence, and it is chiefly the outcome of a special investigation which took place in the year 1898. Certain

* Gloucestershire County Council: Annual Report of the late Technical Instruction Committee for the year ended 31st March, 1903 (Office of the Clerk, Shire Hall, Gloucester).



THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER (DEPARTMENT FOR BLEACHING, DYEING,
PRINTING AND FINISHING TEXTILE GOODS AND FOR PAPER MANUFACTURE). (*See page 471.*)

centres were then selected, viz. :—Cheltenham, Gloucester, Cirencester, Stroud, Lydney, Wotton-under-Edge, Chipping Campden, Tewkesbury and the Southern Centre (the last named being carried on in conjunction with the Governors of the Merchant Venturers' Technical College, Bristol). In every case the locality was selected because of the existence of buildings and class-rooms connected with some anciently endowed grammar school or some modern school of science and art.

Apart from the work connected with these selected centres, a good deal of special work has been undertaken or assisted by the Committee.

Agricultural and Dairy Work.—A most excellent dairy school has been established at Gloucester, and, under the control of the Agricultural Sub-Committee, classes of most varied interest connected with agriculture and horticulture have been held all over the county. A good deal of experimental work has been carried out, and much use has been made of the office of the Director of Agricultural Education as a bureau for information.

Domestic Science.—The Gloucestershire School of Domestic Science in Gloucester owes its institution, its progress and its success to the public spirit and enthusiasm of private individuals, but of late years the Committee have contributed a large annual sum to its funds, and without the help rendered by the County Council in supplying the buildings, which now form its permanent location, it might ere this have ceased to exist. The extent and usefulness of the work it carries out may very fairly be gauged by the facts (a) that last year its expenditure amounted to £2,661 11s. 10d., its chief sources of income being a grant of £1,000 from the Committee and of a sum of no less than £1,369 contributed in fees by its pupils; (b) that the school's scheme embraces (i.) training schools for teachers and for girls for domestic service, (ii.) elementary school classes, (iii.) evening classes and (iv.) county classes organised by local committees; and (c) that the numbers of pupils in the training school are 70, in the county classes 1,600, that teaching is afforded to over 2,000 elementary school children and that there is a large attendance at the evening classes.

Mining.—Two attempts were made in the early history of the Committee to deal with the question of special technical instruction in the mining districts. Both attempts resulted in failure, but in 1897 a third attempt was made and this time a most complete success has been obtained. Each year the classes appear to prove more popular, each year the desire for instruction appears to increase, each year the benefits derived seem to be more appreciated.

Handicraft.—This has fared but indifferently. Classes in wood-carving have been held for many years, and that much really good work has been done was amply evidenced at the Exhibition at the Shire Hall last March. But it was hoped that many efficient carvers would have been trained and that a county industry would have been developed, materially adding to the wage-earning capacity of several districts—an object that has failed, as no ready market for the work has been found. This is, apparently, not because there is no demand for such work as it was hoped the classes would carry out. With very few exceptions, the classes have not produced efficient pupils in sufficient numbers to turn out really saleable work in quantity. Though, however, this special object has failed, yet the carving classes have produced some beneficial results. A few most efficient carvers have been trained, and the classes have certainly fostered habits of industry. Recently a commercial undertaking in connection with handicraft has been started, an institution from London having moved its workshops to a disused mill at Chipping Campden. The mere fact of the establishment of a highly-paid and flourishing industry in this district must of itself confer considerable local benefit.

Scholarships.—During the period under review, some 200 pupils have obtained scholarships provided by the Committee. Only one scholar has turned out badly, many of those whose subsequent careers have been followed have done well and some six or eight have earned remarkable distinction. Probably without the opportunity offered by the Committee the talents of these young men and women would never have been brought out and developed.

Conclusion.—What is the net outcome of the labour of 13 years in the promotion of technical education in the county, and of the accompanying expenditure of nearly £84,000, may be stated in a few words. There are several flourishing institutions, which owe their present position very largely to the County Council, doing good work and ready to increase that work. They have secured a position and have gained an experience that fully qualify them to develop and carry out their mission on lines which the new County Committee will have to indicate. Those who have studied in these institutions have been very numerous. Those who have followed the varied classes in agriculture, mining, domestic science, nursing, ambulance and handicraft are more numerous still, so that those who have profited by the work may be reckoned by thousands. The way has thus been well prepared for much more mature and extended work, especially in connection with secondary education, which obviously becomes a necessary task under the new Education Act.

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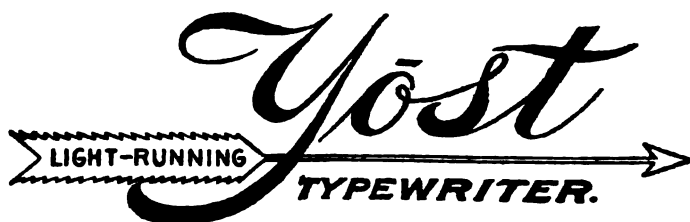
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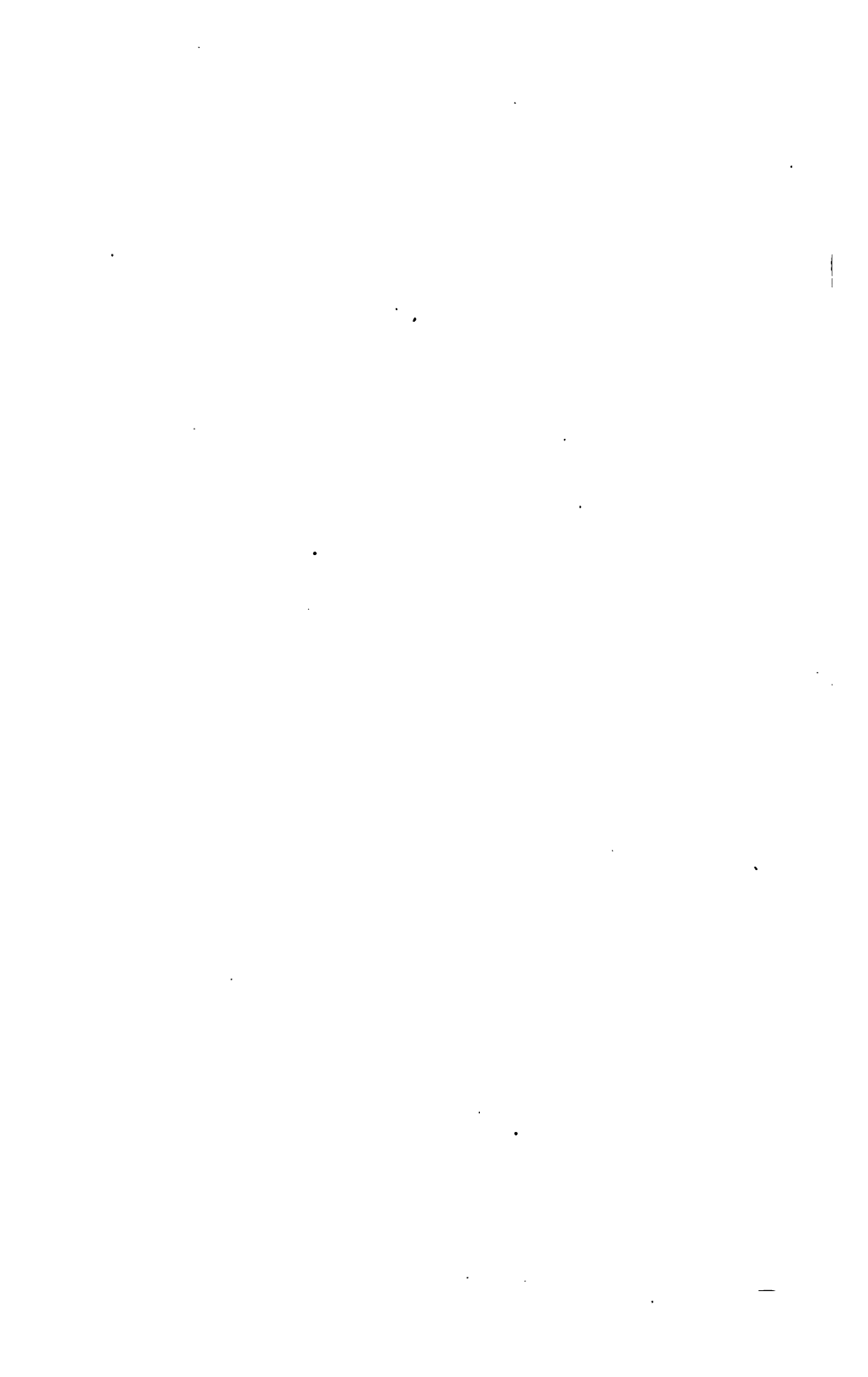
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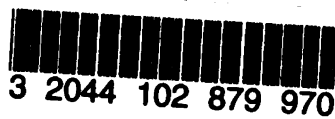
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